Connected Lives: The Project[1]

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Being Networked

Connected Lives Before the Internet

> *Only connect, and the beast and the monk, robbed of the isolation that is life to either, will die* [E.M. Forster, *Howard's End* (1910), Chapter 22.]

Barring the odd beast and monk, just about everyone is connected these days – at most by six degrees of interpersonal connection and often by less (Milgram, 1967; Kochen, 1989; Watts, 2003). Yet, only a tiny fraction of those who are connected ever interact in any meaningful way as friends, relatives, neighbours, workmates, and acquaintances. These ties comprise our individual personal communities, each a solar system of 10 to 2,000 persons orbiting around us (Wellman, 1979).

Such personal networks abounded before the coming of the internet, and they flourish now. This chapter uses survey and interview information from our new *Connected Lives* project to investigate what information and communication technologies (ICTs) are doing to us and reciprocally, what we are doing to ICTs.[2] We begin with a long-term view of personal networks and work our way towards present day shifts characterized by "networked individualism" (Wellman, 2001). Thereafter we elaborate the substantive areas of inquiry that the Connected Lives project is addressing and present early findings to bolster our claims.

Neighbourhood and Village Groups: Our elders and ancestors tell us that once upon a time, personal communities were small and stable. They were rooted in villages and neighbourhoods, with community members changing slowly through the life course via marriage, death, quarrels, and war. People had stable marriages and were members of a single, local, small densely knit

[1] Barry Wellman is the Principal Investigator of the Connected Lives project. He and Bernie Hogan have major responsibility for the overall drafting of this chapter. Phuoc Tran is the project's computer specialist while the other co-authors are doctoral students at NetLab.

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[2] This formulation is a slight paraphrase of Rheingold, 2005, p. 6.

group that normally communicated by walking, shouting or glancing door-to-door (Figure 1a). A preindustrial village or an urban village would be exemplars. Such communities often contain many kin and neighbours, with frequent communication among them. Interactions involve much dropping in on people, awareness of the rhythms of daily communal life, and strong community norms and solidarity (Wellman and Leighton, 1979; Wellman, 2001).

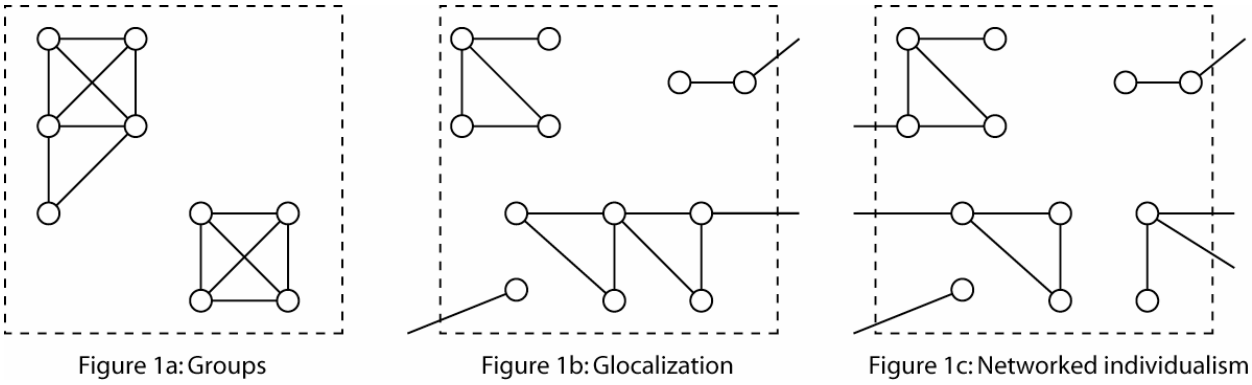


Figure 1: Three models of personal community (Copyright © Wellman Associates 2005)

Computer scientists – and their acolytes – like to think that it was the internet that changed bounded village communities to what Marshall McLuhan has called the "global village" (1964). Yet they are only echoing a long tradition of pastoralist nostalgia that has overstated the stable localness of past times (Marx, 1964). The shift from local, group-based social structures to far-flung, sparsely knit, network-based social structures started well before the advent of the internet and other ICTs. Even before the advent of the Industrial Revolution, marriages often were short; remarriages and informal liaisons were common. Nor was community always local. For example, Jane Austen's heroines galloped past their neighbours to visit friends and relatives hundreds of miles away; shepherds and nomads wandered long distances; students, soldiers and camp followers journeyed far to universities and wars; (see, for example, the tales recounted in LeRoy Ladurie, 1975, 1997; Davis, 1983).[3]

Glocalized Place-to-Place Networks: In the last half of the twentieth century, the spread of cars, planes, buses, rail, and phones broadened the base and frequency of long-distance connectivity. These technologies enabled ordinary people to keep in touch with friends and relatives, and workers to travel long distances. The result was that by the 1970s, if not before, neighbours were only a small percentage of personal communities. Rather than being born into life-long local community groups, people have been better able to choose their personal community members. Their neighbourhood communities have transmuted into personal community networks: fragmented multiple social networks connected only by the person (or the household) at the centre.

Concomitantly, the proliferation of paid opportunities for women to work – in conjunction with postponed marriage and parenthood, accessible birth control, dual-job families, and the prevalence of divorce – affected the extent to which North American households are stable, heavily interacting units where husbands, wives and children see much of each other (Statistics Canada, 2003, 2005; Jacobs and Gerson, 2001; Fagan, 2001). Even the act of a family eating

[3] See also the discussions in Thébert, 1985; Barthélemy and Contamine, 1985; Ward, 1999; Wellman and Wetherell, 1996; Wellman and Leighton, 1979.

meals together as a solidary group has been on the decline (Putnam, 2000).[4] Moreover, the number of Americans in "core discussion networks" – people to discuss important matters with – has declined by 29% (2.94 to 2.08) between 1985 and 2004 (McPherson, Smith-Lovin and Brashears, 2005).

American involvement in some group-oriented activities – such as bowling leagues, civic organizations and church groups – has also declined. Rather, individuals are extensively involved in less-bounded, less-structured informal networks where they manoeuvre through multiple sets of ties shifting in saliency and frequency of contact. Each person enacts multiple roles at home, in the community and at work. Their friends – and even their relatives – are often loosely linked with each other (Wellman and Hampton, 1999). These loose linkages do not imply a complete untethering of social relations: there are few isolates "bowling alone," as Putnam's metaphorical book title asserts (2000). They are bowling in sparsely knit networks rather than in solidary groups (see research by Fischer, 1982; our NetLab e.g., Wellman, 1979; Wellman and Wortley, 1990; and others reviewed in Wellman, 1999).

Networked relations no longer are confined to neighbourhoods and villages. Yet, until the turn of the twenty-first century they have been based in a few specific and fixed places although many ties stretch well beyond neighbourhoods. They are *"glocalized":* both far-flung (global) and local.[5] Households remain the pre-eminent units for organizing marital and community relations. Many friends, relatives and co-workers travel substantial distances to get together. Phone calls and even internet communication are made to households wired by telephone and cable lines, (Wellman, 1982; Wellman and Wellman, 1992; Wellman and Wortley, 1989). People connect "place-to-place": aware of local contexts but not dealing with places in between as they travel, phone or email sizeable distances to connect with dispersed friends, kin and workmates.

Glocalized networks contain overlapping groups of people. There is much group interaction within local places – homes and offices – but no overall integration. It is not that there are simply less or more ties, it is that there are clusters of ties that are really dense, many of which are affinity groups associated with a particular milieu, such as neighbourhoods, church, work, old school friends, and kin (Feld, 1982; Wellman and Leighton, 1979; Simmel, 1903; Kadushin, 1965). Hence, glocalized networks connect across small clusters, rather than connecting within a large cluster. They provide diversity, choice and manoeuvrability at the probable cost of cohesion and long term trust (Wuthnow, 1998; Putnam, 2000; Wellman, 2001; Fischer, 2005).

Recent research into how information flows on the web has shown that such inter-cluster connectivity is an efficient networking structure (Watts, 2003; Adamic, Buyukkokten and Adar, 2003; Wellman, 1988). Most clusters contain super-connectors – people linked to large numbers

[4] We confine our discussion to North American trends, but we suspect that our argument is largely applicable to developed societies and perhaps to societies elsewhere. There are exceptions of course. For example, Catalans continue to live with their parents and adult children, eating most meals together Wellman (2002).

[5] We write in the present tense because such glocalized interaction patterns remain prevalent in the developed world, even as ICTs proliferate. Indeed, so do densely knit local solidarities. For example, Robert Putnam developed some of his ideas about the persistence of village community in the Italian village of Bellagio (personal communication to Wellman 2005): a place with densely knit, longstanding internal communication that serves a glocalized international tourist population including movie star George Clooney (Wellman's observations, 1999-2005).

of others in multiple social milieus – and these connectors rapidly diffuse information. Although super-connectors were first identified in studies of links between websites, we believe that they are even more network-efficient for humans, because people are more likely to connect to multiple other social milieus than are oft-isolated websites (Watts, 2003).

Person-to-Person Networked Individualism

The most recent shift has been to glocalized networks in which the individual – and not the household, kinship group or workgroup – is the primary unit of connectivity. Such a social structure preserves the aforementioned advantages of glocalization: access to a variety of information-providing social milieus and rapid linkage by super-connectors. Because the networks are not confined to one or two solidary groups, they acquire resources from a variety of sources (Granovetter, 1973, 1995; Merton, 1957). The strength and content of ties vary from situation to situation, and from day to day in how active or latent they are – as people manoeuvre through their days and lives. The very presence of a large, active and resource-filled set of ties has become an important resource in itself

This individualisation of connectivity means that acquiring resources depends substantially on personal skill, individual motivation and maintaining the right connections. The loss of group control and reassurance is traded for personal autonomy and agility. With networked individualism, people must actively network to thrive or even to survive comfortably. More passive or unskilled people may lose out, as the group (village, neighbourhood, household) is no longer taking care of things for them (Kadushin, et al., 2005). Recall that most of the chains in the small worlds studies were *not* completed (Milgram, 1967; Dodds, Muhamad and Watts, 2003), presumably because of ignorance about whom to connect with next or a lack of motivation to make the connection.[6] By contrast, hypernetworkers use social networking software to find, connect and capitalize on thousands of current, former, and potential network members, with one person achieving nearly 8,000 connections through *LinkedIn* (Mayaud, 2005a, 2005b).

The shift to networked individualism has happened recently. Up until the 1990s, places were still the main context for interaction for most people. Along came the internet and its progeny: Usenet and email were followed by a myriad of ICTs: instant messages (IMs), webcams connecting individuals; chat rooms and listservs connecting groups; blogs, photoblogs and podcasts to broadcast thoughts, pictures and sounds. Parallel to the proliferation of ICTs has been a huge global expansion of mobile phone use, carrying both voice and text (Katz & Aakhus, 2002; Ling, 2004). With the internet and mobile phone, messages come to people, not the other way around. Individuals are connected by their phones, but their phone is not tied to a place and its environment (such as a family or office). Mail is delivered less to a physical box at a family home than to an inbox accessible wherever an individual has an internet connection.

In short, there has been a shift from place-to-place networking towards person-to-person networking. This is not a shift towards social isolation, but towards flexible autonomy using social networks. It simultaneously implies the responsibility for people to keep up their own networks with more freedom to tailor their interactions. The shift is towards a form of social structure that we call *"networked individualism"* (Wellman, 2001; see also Castells, 2001). Although networked individualism encompasses broader trends in the organization of work and nations, our concern here is with social interactions mediated by modernity and technology. (Figure 1c; see also Wellman, 2001, 2006; Wellman and Hogan, 2004; Hennig, 2006).

[6] We are grateful to Charles Kadushin for pointing this out.

Our Connected Lives research is investigating the extent and nature of networked individualism. We believe that individualised networks are often larger than glocalized networks and are less densely knit. Networked individuals know people through individual networking, such as ad hoc meetings over lunch or sending individually tailored email. Their ties are specialized, providing them with different types of support and sociability in a variety of social milieus. Each milieu has limited control over an individual's behaviour; each individual has limited commitment to a specific milieu and a low sense of group membership.

Networked individualism can be contrasted with the glocalized situation of networking in which people are involved in a number of specific groups. Networked individuals often have time binds, since they are constantly negotiating plans with disconnected sets of individuals. As they manoeuvre through their multiple networks, their ties often vary from hour-to-hour, day-to-day and week-to-week (Menzies, 2005).

The shift to networked individualism has been accompanied by a shift in theorizing about interpersonal behaviour. Rather than seeing society as driven by individual norms or by the collective activities of solidary groups, social network analysts focus on how people's connections – to each other, groups, organizations and institutions – affect possibilities and constraints for their behaviour. The social network approach allows for people manoeuvring among their relationships, with ICTs providing further manoeuvrability (Wellman, 1988, 2001).

Hence analysts are replacing one-way technological determinism – the assumption that ICTs cause behaviour – with a two-way "social affordances" viewpoint that inquires about the opportunities and constraints that ICTs and social systems provide for each other (Bradner, Kellogg and Erickson, 1998; see also Ling, 2004 on the "domestication" of technology). This is the stance of our Connected Lives project.

Plan of Chapter

In this chapter, we use the shift towards networked individualism to help frame and explain the difference ICTs can make to social interaction. We look at social networks and the internet in the home and beyond the home. We focus on how network structures can influence communication patterns and travel, and how personal dispositions can influence network structures. Our key concerns are:

- How does the shift to individual means of communication – the internet and mobile phones – affect domestic and community solidarity?
- If people are immersed in the internet, how does this affect their relations with household members?
- Has the shift from groups to networks affected the ways in which ICTs are being used?
- Do ICTs increase or decrease involvement with community members and more organized forms of civic life?
- How do ICTs affect travelling to see friends and relatives?
- What is the nature of social support – emotional and material aid – in a networked individualised society in which many interactions take place via ICTs?
- How are the ways in which people obtain information related to their ICT use?

This chapter presents the rationale, measurement and preliminary findings from the Connected Lives project. As our NetLab is itself a team of networked individuals we present our

study in multiple complementary sections. In this, our first reconnoitring of the field, we each use different analytic approaches with variations in sample size, variable definitions, and analytic techniques. We work outwards from household, through personal community networks, to finding information through networks or further afield. Our presentation is divided into four principal sections:

- The networking of households
- The size, composition and management of personal network communities
- ICTs and travel to social activities
- Finding support and information online and offline.

Doing the Connected Lives Project

Data Gathering

In this first report, we discuss the overall sample of survey respondents and interview participants in order to provide an overview of our concerns and our data. Future research will examine the connected lives of subgroups and individualism in more detail.

The Connected Lives project gathered quantitative and qualitative data through a large survey followed by detailed interviews with a subsample of survey respondents. The study fits between large-scale surveys that provide overall (often national) statistics and ethnographic studies of a small number of cases. The large sample size of the survey provides statistical generalizability while its one-hour length provides useful detail. The in-depth interviews with a sub-sample of the same participants provide more detail plus the ability to acquire information about social networks and search processes.

Survey*:* The team collectively developed a lengthy 32-page survey from November 2003 to June 2004. We randomly sampled English-speaking non-frail adults (18+) in East York and completed 350 surveys between July 2004 and March 2005. The sampling frame yielded 621 valid names, and we obtained a response rate of 56%. Each survey took between one and two hours to complete. It was dropped off at the respondent's house and picked up one to three weeks later.

The survey makes it possible to establish a fairly good picture of how people in East York are currently using the internet. It asks about respondents' computers, jobs, household members, personal community networks, community involvement, social attitudes, and the customary demographics. Except where noted, all statistics used in this chapter are from the survey.[7]

[7] The 32-page survey was designed and typeset in *Adobe InDesign CS* by Bernie Hogan. The cover logo was designed by Phuoc Tran and mirrors a public *http://www.connectedlives.ca* webpage. Given the emphasis on contemporary ICT use, we felt it important for the project to have a public face online. The survey package included the logo, an introductory letter and a picture of the Connected Lives team. Standard survey procedures were used: an initial letter followed by an in-person follow-up and subsequent pick-up, *Tim Hortons*™ gift certificates to respondents, and extensive attempts to convert refusals and incompletes into completed surveys.

Interviews: In-home interviews were conducted between February and April 2005 with one-quarter of the survey participants (87 in total). The interview schedule was developed by the Connected Lives team between September 2004 and January 2005, in tandem with the survey deployment. The interviews were conducted by Connected Lives doctoral students and took two to four hours – usually in a single evening session. The response rate was 85% of those survey respondents who wrote "yes" or "unsure" when asked at the end of the survey if they would be willing to be interviewed.

The interview starts with a semi-structured section on daily routines and moves on to computer and internet use. The interviews obtained detailed information about household relations, internet use, travel behaviour, social networks, and information seeking. It includes a name generator to help describe the personal networks of the respondents (Carrasco, et al., 2005).

Participants were questioned during the interviews about their general culture and leisure activities, how they select specific activities to engage in, and the role the internet plays in their leisure lives. Information about cultural activities was gathered by having people rank a series of cue cards listing leisure activity groups, and then asking them to elaborate on the specific activities people engaged in. This was then followed by a series of questions about how people gather information and make decisions about the culture and leisure activities they identified as being of interest. Participants were then asked about the role that the internet plays in information gathering, decision making, and engaging in activities. As we are still coding the interviews, no statistics from it are presented, but the interviews do provide illustrative quotations and interpretive enrichment.

Observations: Free and semi-structured observations and discussions were used to relate participants' actual behaviour to their interview and survey responses. If the interview participant had an internet connection, we concluded our visit with an in-home observation of how the participant actually uses a computer and searches for health and cultural information. Interview participants were asked to demonstrate how they use the internet. This included both unstructured demonstrations of everyday uses plus structured demonstrations of specific skills, using a protocol developed from our study of computer literacy (Wellman & Romanovska, forthcoming; see also Hargittai, 2005). The observations focused on how the participants obtain health and cultural information. We also photographed the participants' computer setups.

East York and East Yorkers

East York: The case study is set in East York, a residential area of Toronto that has played host to NetLab's two previous community studies in pre-internet days. A distinct self-governing "borough" of Toronto until metropolitan amalgamation in 1998, East York has always prided itself on its local community and small town atmosphere (Davidson, 1976; Cooper, 2004). East York was originally chosen for the first study in 1968 because of its convenient locale (30 minutes drive from the downtown core), atmosphere, cooperative government, and cultural homogeneity. Its selection for the second study (1978-1979) was for longitudinal continuity as 33 original respondents were re-interviewed (Wellman, et al., 1997). While it would not be feasible to do a third wave of a longitudinal study 25 years later, East York retains its value for comparisons with our pre-internet data, and it provides a fair cross-section of the Canadian urban public.

East York sits squarely within the arterial highway system of Toronto. It is bounded on the west by an expressway, on the south by a subway line, and buses frequently travel main routes. Mobile phone and broadband internet service is widely available throughout Toronto, the largest

metropolitan area of Canada. Computer access is good, with telephone and cable companies competing to provide broadband connectivity.

East York is near the heart of metropolitan Toronto, 30-45 minutes travel from Toronto's central business districts (Figure 2a). Its population of 114,240 (2001 census) is ethnically and socioeconomically mixed, residing in houses and apartment buildings (Figure 2b).

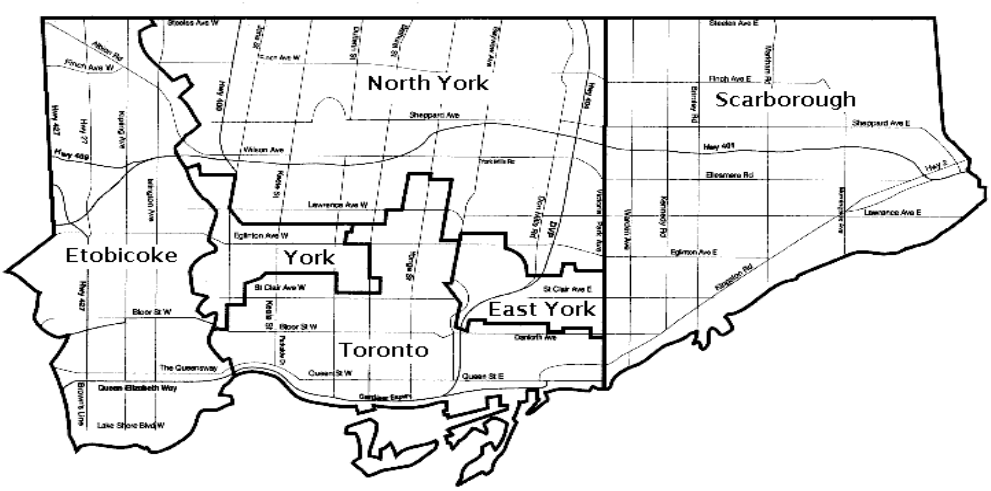


Figure 2a: East York in Metropolitan Toronto

Figure 2b: Houses and apartment buildings in East York © 2005 Wellman Associates

The East Yorkers: In many respects, East Yorkers reflect Anglophone urban Canada. Fifty-eight percent of the survey respondents are women, with a median age of 45. Fifty-nine percent

of the somewhat less representative interview sample are women; with a median age of 49. Nearly two-thirds (62%) of the survey respondents are married or stably partnered, as are 68% of the interview participants. Three-fifths (61%) of the survey respondents have children; as do a somewhat higher 66% of the interview participants.[8]

The East Yorkers are educated. Forty-three percent of the survey respondents have a university degree, while 27 percent have a high school education or less.

The bulk of the population is working-class and middle-class. Median personal income is between $30,000 and $40,000. With most adult household members doing paid work, median household income is substantially higher, between $50,000 and $75,000.[9] Sixty-two percent of the survey respondents are doing paid work. Of the rest, a high percentage (37%) are retired, 16% are students, and 13% are full-time homemakers. The rest report that they are between jobs, on leave, or have other reasons for not working.

Sixty-two percent of the survey respondents are coupled: married, common-law, or in a long-term relationship. Twenty-three percent are single. Compared to the survey respondents, a higher percentage of the interview participants are likely to be coupled (68%) and a lower percentage to be single (15%). A higher percentage (51%) of interview participants than survey respondents have a university degree, while only 20% of the interview participants have a high school education or less.

Recent immigrant migration and high-rise apartment development has made the East York cityscape more complex than its village-like past. When we previously gathered data in East York in 1968 and 1978-1979, almost all residents were Canadian born and of British-Canadian ethnicity. The situation has changed substantially in the past decades. East York is similar to much of the metropolitan Toronto area (and different from many other places in Canada) in its high percentage of foreign-born residents. Fifty-three percent of East York residents were Canadian-born in 2001 (Statistics Canada, 2001), similar to the 51% Canadian-born survey respondents and 58% interview participants.

The largest ethnic group remains British-Canadian, comprising nearly half (44 percent) of the survey sample. However, visible minorities (i.e., nonwhite-Canadians) comprise 27 percent of the survey sample: principally East Asians and South Asians, with Chinese-Canadians and Indian-Canadians being the largest groups. This is substantially lower than the 2001 Canadian census report that visible minorities comprise 36 percent of the East York population. These ethnic groups are underrepresented in our survey (and subsequent interviews) because of language and cultural barriers. In most other respects, our data reflects census demographics, including gender, age, income, education, and family composition.

Networked Households[10]

[8] Kayahara and Wellman (2005) provide more demographic detail.

[9] Following common survey practice, we asked respondents report their income within ranges, such as $30,000-$40,000. All dollar amounts are in Canadian dollars, which at the time of our research was equivalent to about 78 US cents, 67 Euro cents, 45 British pence, 87 Japanese yen, and 6.6 Chinese yuan.

[10] Tracy L. M. Kennedy has major responsibility for this part of the Connected Lives project and drafted much of this section.

Contemporary household structures are becoming "post-familial families" (Beck and Gernsheim, 2002; Wehner and Abrahmson, 2004). Within this transition, we believe that households have become networked in two mutually reinforcing ways.

First, they have become the hubs of communication networks rather than self-contained homes that are penetrated only by doorbells, wired phones and paper mail. At any one moment, a household member may be talking on a wired phone, another using a mobile phone, while still others – adults or children – are emailing, playing online games, or chatting in online groups. With the widespread diffusion of the internet and mobile phones, patterns of online use have shifted significantly from work and school to the more personal context of the home. ICTs have become key ways in which household members communicate and coordinate with others.[11]

Second, many households – like personal communities – resemble social networks more than solidary groups (Putnam, 2000). Household members keep different schedules, no matter if they are dual career, single parent, married couple, or several friends. Although household members usually take each other's agendas into account, they do not move in solidary lockstep. Women – the historic kinkeepers and networkers within and between households (Rosenthal, 1985; Wellman, 1982; Wellman and Wellman, 1992; Spitze, 1996) – are spending less time at home doing household chores and more time out of the home doing paid work (Robinson and Godbey, 1997). Moreover, in networked households, individual household members are less able to rely on each other to arrange their social life with friends and kin. This is a major change since we last interviewed East Yorkers in 1979, when one man (typically) reported that his wife "can remember everything except where my socks are" (Wellman, 1985).

ICT Use in Households

With the shift of analytic attention from demographics – who uses the internet – to dynamics – who do they use it with, where, why and when – comes a need to understand the internet's role in households. The great majority (79%) of the survey respondents have at least one computer at home. Almost all (94%) of these computerized households are connected to the internet. This means that 75% of all the surveyed households are connected to the net, a rate similar to national Canadian and American internet use (Ekos, 2004; Rideout and Reddick, 2005). Respondents report being online a *median* of 10 hours per week, and sending emails a median of 21 times per week. This is similar to the July 2005 Canadian *mean* usage of 12.7 hours per week, once outliers are accounted for (Ipsos-Reid, 2005).[12]

[11] Cumming and Kraut, 2001; Bakardjieva and Smith, 2001 Dickson and Ellison 2000; Wellman and Haythornthwaite, 2002; Fortunati, Katz and Riccini, 2003; Kennedy, 2005.

[12]The 12.7 mean hours per week of internet usage in 2005 is up 46% from 8.7 hours in 2002. It is slightly less than the 14.3 hours per week that internet-using Canadians spend watching television and the 11.0 hours they spend listening to the radio (Ipsos-Reid, 2005).

Thus, the internet is not a part of every home – even in Canada – nor does every Canadian feel that it is the internet that connects them to the wider world. Yet, the internet and ICTs permeate Canadian society. Even those who do not have computers at home often have access to them at work, school, cafes, libraries, etc (Boase, et al., 2003). While some use the internet for a wide variety of things – communication, information, recreation, and commerce – others focus more. Some people still feel hesitant to shop online, while others see it as a tool for work rather than for recreation (Wellman and Haythornthwaite, 2002; Katz and Rice, 2002; Kraut, et al., 2002).

Several phenomena play a role in internet use: especially higher levels of education and income, and the presence of children in the household (Chen and Wellman, 2002; Statistics Canada, 2002). That the presence of children makes a difference suggests that parents have a particular understanding of what the internet is good for, perhaps even before they start to use it. Indeed, in some households age dynamics are reversed, with teenage children helping their parents to use the computer (Kiesler, et al., 2000; Ribak, 2001).

The complex lives of household members – coupled with their personal mobility and mobile connectivity – means that household members often want to use ICTs to communicate with each other as well as with community members. Although enthusiasts have treated computer and internet use as an unalloyed good, in practice, use can create stress. A generation ago, some households argued about who would get the family car. Now, some households argue about who gets to use the family computer (Lenhart, Madden and Hitlin, 2005).

Despite the internet's potential for creating conflict and stress in households, little stress and conflict reportedly happens. Only a minority of households have such arguments. Sixty percent of respondents in households with more than one resident and at least one computer say they never argue about who gets to use the internet, while only 5% say they argue half the time or more. Most disagreements only happen "some of the time" (Table 1). This suggests that regardless of the actual change in behaviour associated with using the internet, most interview participants believe that there is little conflict about computer use. When disagreements do occur, they are about who has access to the computer, what people are doing online (e.g., porn, "goofing-off" rather than "serious work" or looking for cultural information), and who is online too much. As one participant reported:

> *Interviewer:* So you think it takes away from things that you like, other shared activities, or other things that you might be doing together. What kinds of things would you be doing together if he wasn't online?
>
> *Participant 608:* It could be a combination of anything from entertaining ourselves together, which could be a physical activity as well as discussion on a personal level, which we could be discussing an article that we might have read…I've accepted the situation. I've tried different methods to get what I want like anyone else and when you finally give up, you go onto something else. Therefore, OK, once you go onto something else, that is no longer shared time.

Table 1: Household disagreement about internet use (N=242)

	Disagreements about someone using the internet too much (%)	Disagreements about who gets to use the internet (%)
Never	64	64
Some of the time	28	32
Half of the time	3	2
Most of the time	5	2
All of the time	<1	<1

Percentages calculated from respondents who reported internet access at home.

Families with more than one child at home were 2.2 times more likely to argue than families with one or no children. This could be parents arguing with children about computer use and also children arguing with each other (see also Mesch, 2006b).

Having multiple computers at home does not affect the likelihood of disputes about computer use, perhaps because households with a lot of tension have already purchased several computers. For example, one household we studied has three internet computers in their living room, bought partially as a way to resolve disputes (Figure 3).Thirty-one percent of the survey respondents have more than one computer at home; this is 39% of those who households that have at least one home computer (Table 2). Not only is there less competition for use with multiple computers, they are often dispersed in different rooms, giving more privacy and minimizing household members' disapproval of each other's computer use. Our findings are consistent with a large U.S. national survey of teens that found that "increasing numbers of teenagers live in a world of nearly ubiquitous computing and communication technologies that they can access at will" (Lenhart, 2005).

Figure 3: Networked at home: the three-computer living room © 2005 Wellman Associates

Table 2: Distribution of the number of computers in the household (N=328)

Number of Home Computers	N	%
0	69	21
1	164	50
2	64	20
3	22	7
4	7	2
5	1	<1
7	1	<1

Another contention-reducing option is to use the internet at different times of the day (see also Mesch, 2006a, 2006b). This works best if some people stay home during daytime hours as the survey data show that the internet is used most frequently at home between 5 and 11PM (Table 3), when many people have returned home from paid work or school. Although interview participants report that they are usually on the internet without the participation of other household members, they do not feel that their internet use interferes with household life even though they are connected to people online as well as to household members. Their online networking appears to fit into their networked household lives. While Sherry Turkle's studies of cyberaddicts (1984, 1995) led her to argue that people get so immersed online that they develop "second selves," this is not the case among the ordinary people of East York.

Table 3: Period of the day when respondents use the internet (N=263)

Period	N	%
5-8am	47	18
8am-12pm	89	34
12pm-5pm	89	34
5pm-11pm	217	83
11pm-5am	78	30

Percentages calculated from respondents who reported internet access at home

The Place of Computers in Households

The location of computer use in a household can affect how it is used as well as relationships among family members. Placing a computer in an isolated den frames it as a "work" machine whereas placing it in a family room frames it as a "home" machine. Nearly half (46%) of the survey respondents who have a home computer have at least one in an office or study (Table 4). At the extreme end, one major Canadian telecommunications company insists that its home-based teleworkers work in a separate lockable room (Dimitrova, 2003; Salaff, 2002).Thus, spatial boundaries become social boundaries, especially for young children. If a computer is in a parent or child's bedroom, it is difficult for other household members to have access to it when occupants are sleeping or otherwise engaged (Frohlich and Kraut, 2002; Haddon and Skinner, 1991; Aro and Peteri, 2003).

Our interviews reveal that it is not always the case that the home office is work space and the family room is recreational space. While organizations may insist that teleworkers have a separate closed-door room, in practice they are unable to enforce this. Home and work boundaries of these spaces are blurring, with people thinking creatively about reorganizing household spaces to accommodate their internet use. People decorate their offices, or have an "open door / closed door" policy to indicate availability for interruption. For example, Figure 4 shows a computer that is well-integrated into the living room of one of the people we

interviewed. It is accessible to all household members in this open, recreationally oriented area. Another interview participant told us how the location of his computer affects his relations with other household members:

> We have an open area on the second floor that we designed on the second story. So, it could have been a 4-bedroom, but I wanted it to be open, so it's like a big landing where the computer is. So, when I'm working at home, or doing something at home, I'm available to everybody still. I don't want to be off in a room somewhere *[Participant* 232*]*.

Table 4: Percentage of respondents who have a computer in specific locations

Location	% of all computer owners (N=265)	% of total sample (N=328)
Office / study	46	38
Living room	24	20
Rec room / family room	23	19
Child(ren)'s bedroom	18	14
Master bedroom	12	10
Other	7	6
Kitchen	2	2

Figure 4: A computer integrated into a family room © 2005 Wellman Associates

Gendered Power over Household Computers

The development of ICTs has resonated with the networking of technology. The networking of households has created a wide demand for personalized, often-mobile ICTs far beyond the early dreams of mobile phone developers that they would be rich persons' toys. The development of ICTs has encouraged household members to go their separate ways while remaining connected and coordinated.

In such networked households, we wonder how gendered power dynamics mediate online behaviour. We are investigating patterns of household relations, including divisions of labour, gender ideology, and the valuation of unpaid domestic work. We are tracking the performance of gender within households through the negotiation of technologies and online tasks. Have household patterns of gender ideology and interactions between husbands and wives – and parents and children – that affect domestic divisions of labour – expanded to include computer use, with some online activities interpreted according to pre-existing gender roles? Consider the oft-demonstrated differences between women and men on time spent on household responsibilities (Robinson and Godbey, 1997). Will the internet be interpreted as a labour saving device to be used by the woman of the house, or as a toy and tool to be preferred by the man (Wajcman, 1998; Cowan, 1983)? Will this vary by content area, with women responsible for socializing online and finding cultural information while men are responsible for playing games and dealing with finances?

The Connected Lives survey shows that women continue to spend more time than men in traditionally gendered tasks such as chores and cleaning, childcare, and cooking and baking, while men continue to spend more time on yard work and home maintenance (Figure 5). This gendered division of labour also includes men spending 23% more time on the internet: 11.9 hours as compared to 9.7. Overall internet use accounts for more hours per week than chores/cleaning, cooking, yard work and home repair – for women as well as for men.[13]

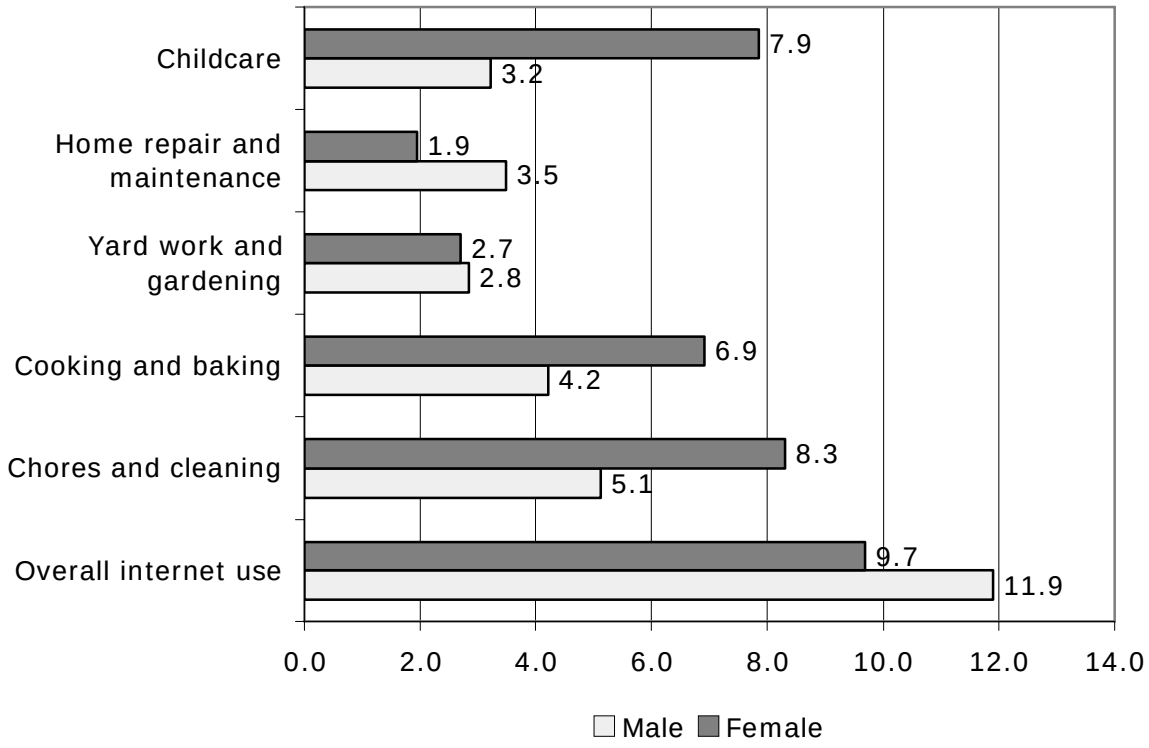


Figure 5: Mean number of hours per week spent on household jobs by gender

[13] We caution that these are preliminary data and do not take into account variations in such things as family and work situations.

Often, when women do go online it is for involvement in what has historically been deemed to be women's work. For example, Japanese homemakers search for advice and emotional support for dealing with children and husbands (Miyata, 2002). Among the East Yorkers, male and female survey respondents specialize in different things (Figure 6). Women continue their offline role as social networkers by "communicating with others online, while men do more searching for "general information". The only anomaly is the tendency for men to do more online shopping. We believe that this is linked to the greater involvement of men in searching for information, and that this may be a diminishing difference as women accumulate greater experience online. The East York women who are responsible for cooking sometimes use the internet to search for recipes:

> I got round steaks, so I'll look up recipes for round steak in the slow cooker or you know chicken or whatever. I do that almost on a daily basis, you know get ideas about what am I going to make for supper tonight *[Participant 174]*.

Although internet use may be gendered in part, interview participants report little conflict about it. The gender gap has disappeared, with women online as much as men, and teenage girls as likely as teenage boys to be computer gurus in their families (see also Kiesler, et al., 2000).

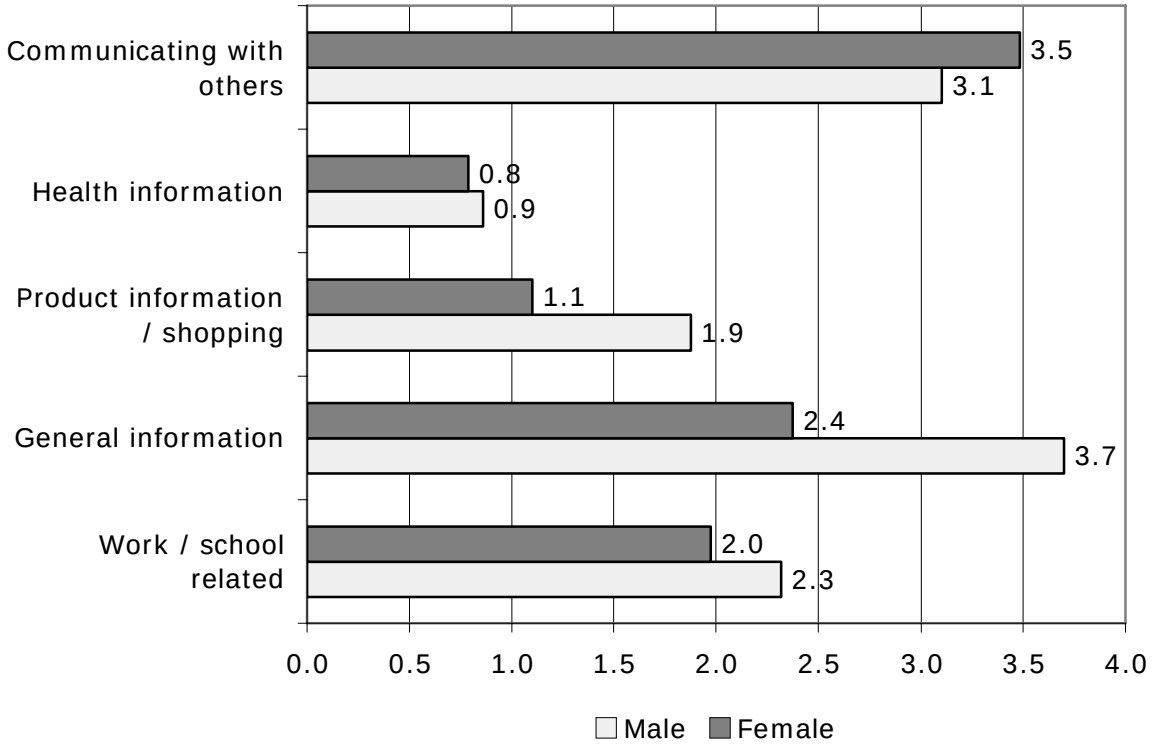


Figure 6: Mean number of hours per week spent on internet activities at home by gender, for those with the internet (N=235)

Networking Personal Communities

The Size and Composition of Personal Community[14]

Despite ongoing scholarly and political fears of the loss of community, we now know that community has survived the large-scale social transformations of urbanization, industrialization, bureaucratisation, technological change, capitalism and socialism. We wonder how the internet – and other forms of ICTs – might affect the size, composition and structure of personal communities.

- Do ICTs increase or decrease the size of community and the frequency of contact among community members?
- Does the ability of ICTs to leap across long-distances with a single mouse click foster far-fling community, and is this at the cost of neighbouring?
- Does the ability to use search engines and the web find comrades with shared interests foster a high number of "achieved ties" such as voluntary friendships? Is this at the expense of "ascribed ties" with relatives, neighbours and co-workers that come less voluntarily from birth, marriage and local juxtaposition?
- Does the person-to-person nature of ICTs lead to less group solidarity and more sparsely knit networks as people manoeuvre among multiple, often loosely coupled components of their personal community?

Early – and continuing – excitement about the internet saw it as stimulating positive change in people's lives by creating new forms of online interaction and enhancing offline relationships. The internet would restore community by providing a meeting space for people with shared interests that would overcome the limitations of space and time (Sproull and Kiesler, 1991; Baym, 1997; Wellman, 2001). Online communities would promote open, democratic discourse (Sproull, 1991), allow for multiple perspectives (Kapor, 1993), and mobilize collective action (Tarrow, 1999; Kelly, 2005).

Although early accounts focused on the formation of online ("virtual") communities (e.g., Rheingold, 1993), it has become clear that most relationships formed in cyberspace continue in physical space, leading to new forms of community that combine online and offline interactions. Online interactions fill communication gaps between face-to-face meetings and make nonlocal ties more viable. They add on to face-to-face contact, rather than replacing it (Quan-Haase and Wellman, 2002; Wellman and Hogan, 2004). The result probably is that the amount of contact among friends, relatives – and even neighbours – is greater in 2005 than in 1995 (see Rheingold, 2000, 2002; Müller, 1999; Hampton and Wellman, 2002). Certainly, more people are writing more, even as keyboards have replaced pen, paper and postage.

Yet, one continuing fear is that the entrancing possibilities of online communication will pull people away from face-to-face (and even telephone) contact, leading to alienation and depression. This has been a concern not just for community but for households, where data indicates that Americans eat together at family dinners only three days in a week and rarely have family outings (Putnam, 2000). As an irate letter writer asserted in the *New York Times:*

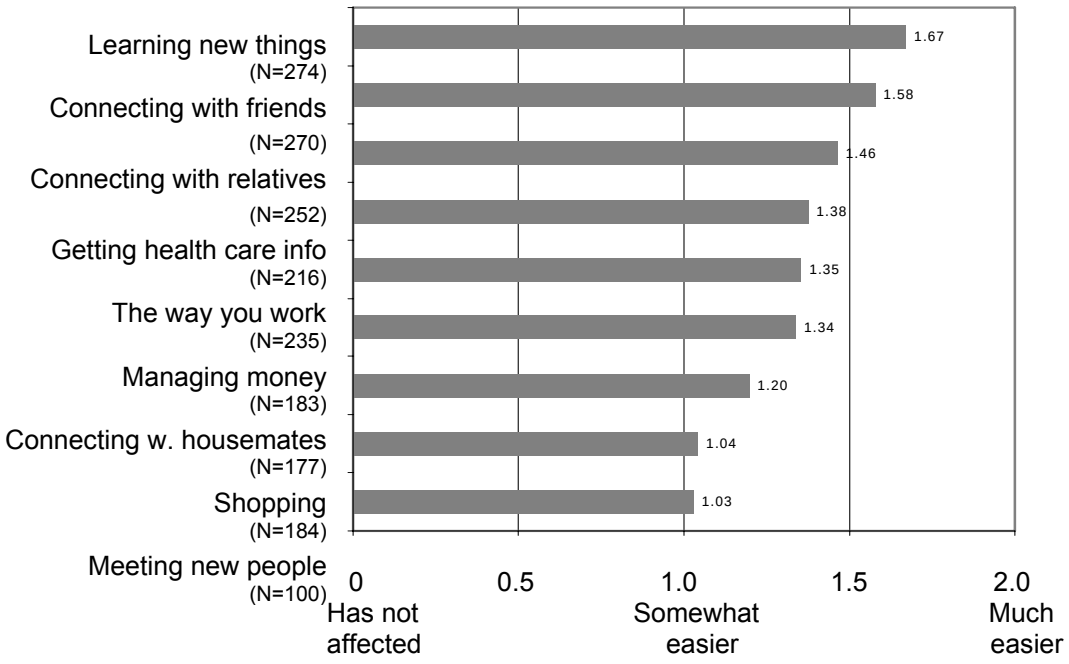
[14] Jeffrey Boase and Bernie Hogan have major responsibility for this part of the Connected Lives project and drafted much of this section.

> How about if all those who spend much of their time chattering on their cellphones stow them somewhere and actually talk to the living, breathing human beings right in front of them. Then maybe they wouldn't have to spend so much time blogging us all senseless. We'd all be truly communicating and we'd have more time to truly accomplish something (Hunter, 2005, p. A18).

Although early research (Kraut, et al., 1998) suggested that internet use may alienate heavy users from other household members, a follow up study showed that this is a problem only for newbie computer users and disappeared with experience (Kraut, et. al, 2002). Even if household psychodynamics are not involved, ICTs may compete with other activities for time in an inelastic 24-hour day (Gershuny, 2003; Anderson and Tracy, 2002; Nie, Hillygus, and Erbring, 2002). Moreover, with the shift to networked individualism, people must maintain many ties one-by-one, as compared to going regularly to kinship gatherings or favourite cafés where the milieu does much of the maintenance work. The work of sustaining individual ties may be easier online where fingers only do the walking on keyboards and multiple friends may be connected at once. This ease, coupled with the narrower interpersonal bandwidth of ICTs (as compared to-face-to-face contact), may foster contact with weak ties of acquaintanceship at the expense of socially close ties.

This is not just speculation. Our data show that people find that the internet generally makes life easier and arguably more social (Figure 7). We asked survey respondents about the perceived ease of doing nine different online activities commonly conducted online (Figure 7).[15] Their responses show that virtually all of the internet-using population report learning new things online, and the internet is making their learning easier. Respondents report that the internet has made connecting members of their personal community much easier. The highest mean score is for information ("learning new things") – principally the web – followed closely by communication ("connecting with friends", "connecting with relatives") – principally via email and IM – as the easiest activities to do.

[15] The perceived ease of doing these online activities was rated on a scale: -2 = made it much more difficult, -1, made it somewhat more difficult, 0 = has not affected it, 1 = made it somewhat easier, 2 = made it much easier. The nine items were summed to obtain an overall score.



N= Number of people engaged in that activity online

Figure 7: Mean level of perceived easy of using the internet for everyday activities

Most respondents have found all the tasks to be easier since they first began using the internet. There are few negatives. Although this scale includes "somewhat more difficult" and "much more difficult" response categories, no respondent reports that the internet makes any task "much more difficult". Only four people say that the internet makes work somewhat more difficult, and only four say that it makes getting health care information more difficult. As for the rest of the activities, only two or less people say that the internet makes any of these tasks more difficult.

It is possible that these self-reported data are biased with some of those who go online saying that the internet has made their life easier, if only out of cognitive dissonance. Hence, we are also investigating behavioural measures such as network size and time spent online.

Measuring Networked Personal Communities[16]

How many people are in a personal community? 5? 15? 150? 1,500? We have seen estimates of all these numbers. The size of a personal community network is a difficult question. Academics have evolved some techniques; aficionados of social software (such as *Friendster* and *Orkut)* can count their lists, as can conscientious Rolodexers™ and databasers. Yet, most people have no idea of the size of their network. Hence we need some way to ask people about this systematically.

The Connected Lives project uses two methods of ascertaining the size and shape of an individual's personal community: the *summation method* in the survey and the *name generator method* in the interviews (Marsden and Campbell, 1984). We have used the summation method

[16] Jeffrey Boase had major responsibility for this part of the Connected Lives project and drafted much of this section.

in the survey because it can be self-administered and takes less time. Although it provides less detailed results than the name generator, it still provides reasonable approximations of network size and composition.[17]

The summation method was invented as a way to break up a larger network into separate and more easily estimated pieces (McCarty, et al., 2001). Researchers ask respondents to report the number of people they know in a number of roles, such as "relatives outside the home" or "neighbours". In the Connected Lives survey, we further differentiate this measure by having respondents report first on the number of people in roles who are *very close*, and then on the number of people in roles who are *somewhat close*. This allows us to test measures that may vary by the strength of ties while simultaneously making the categories more manageable for the respondents.

Very close ties include those with whom people discuss important matters, regularly keep in touch, or are those who are there for an individual if they need help. Very close ties often provide resources that require substantial time, energy, and trust. They are more likely to provide intensive care for those in poor health and they are more likely to provide financial aid (Wellman, 1992; Wellman and Wortley, 1990).

By contrast, somewhat close ties may have some or all of these traits, but to a lesser extent. However, such weaker ties may be more likely than very close ties to provide new ideas and information because they tend to connect to a wide variety of social circles (Granovetter, 1973, 1995).

We asked people to enumerate the number of somewhat and very close ties in the following eight categories:

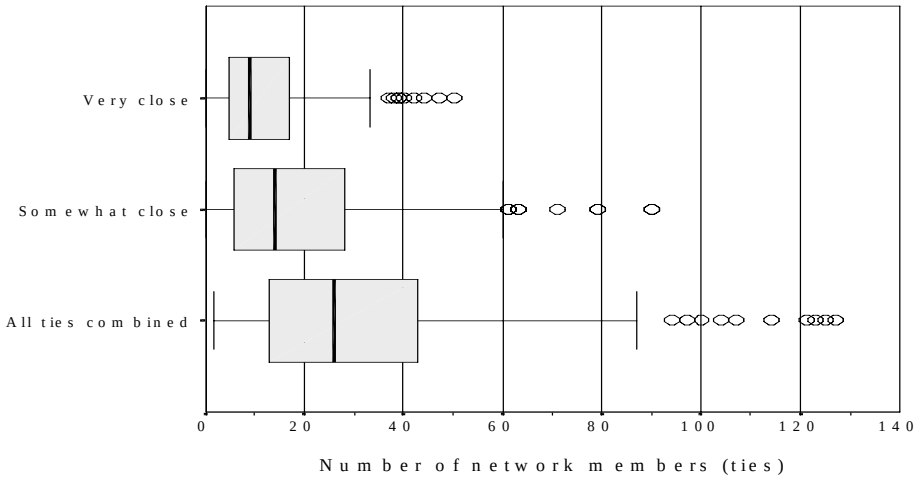
1. Members of your immediate family living outside of your household (parents, siblings, children)
2. Other relatives
3. Neighbours
4. People you currently work with, or go to school with
5. People you know only online
6. People from organizations (such as church, sports leagues, business associations)
7. Friends not included above
8. Other people not included above.[18]

The personal communities of the respondents in our study vary substantially in size, both for very and somewhat close ties (Figure 8). Overall, respondents report a median of 23 ties: 9 that are very close and 14 that are somewhat close.[19] These are roughly comparable to those found in other studies of personal communities (Fischer, 1982; Wellman, Carrington and Hall, 1988). We caution that close ties are only the heart of a personal community network, Estimates of the overall size (including weak acquaintances) of such networks range between 200 and 1,500 ties (Boissevain, 1974; Pool and Kochen, 1978; Bernard, et al., 1990; Kadushin, et al., forthcoming).

[17] Data from the name generator are still being prepared for analysis.

[18] A similar approach was used in February 2004 for a telephone survey of 2200 American adults in the Social Ties study by the Pew Internet and American Life project (Boase, et al., 2005).

[19] Medians are reported because a small number of respondents report huge networks (the mean + 2 standard deviations [= 41 very close ties, 65 very close ties, 106 overall ties] that positively skew the mean.



The solid bar inside each box is the median. The boxes themselves show the interquartile range: the network size of the middle 50% of the sample

Figure 8: Variations in network size for very close, somewhat close and all close ties (N=317)

These personal communities also vary in composition. Some people's networks contain many kin while others contain many friends. On average, 25% of both very close and somewhat close ties are purely friends (Table 5). In addition, many other non-kin are known through work, school, the neighbourhood and voluntary organizations. Immediate kin (parents, siblings, adult children, in-laws) comprise a much higher percentage of very close ties (38%) than they do of somewhat close ties (10%). By contrast, extended kin (aunts, uncles, cousins, grandparents), workmates/schoolmates, neighbours and people known only online or through voluntary organizations comprise higher percentages of somewhat close ties.

Table 5: Mean number of somewhat and very close ties by role (N=297)

	Mean number of very close ties	% of very close ties	Mean number of somewhat close ties	% of somewhat close ties
Immediate kin	3.7	37.9	1.6	10.0
Extended kin	2.8	14.4	4.3	18.8
Neighbours	0.9	5.6	2.4	10.2
Workmates/schoolmates	1.3	8.4	3.9	16.5
People known only online	0.3	1.3	0.3	2.0
From voluntary organizations	1.1	5.1	3.6	13.8
Friends, not included above	3.3	25.4	5.2	25.3
Others	0.1	1.5	0.4	2.5

Plots of the number of ties for each role show a wide level of diversity within the networks (Figure 9). First, different roles make up a large share of the network for different people. Twenty percent are close to 8 or more people from voluntary organizations, 20 percent are close to 9 or more from work, and 20 percent are close to 11 or more extended kin. Moreover, correlation analysis reveals that different people usually have different mixes of kin, friends, neighbours and workmates.

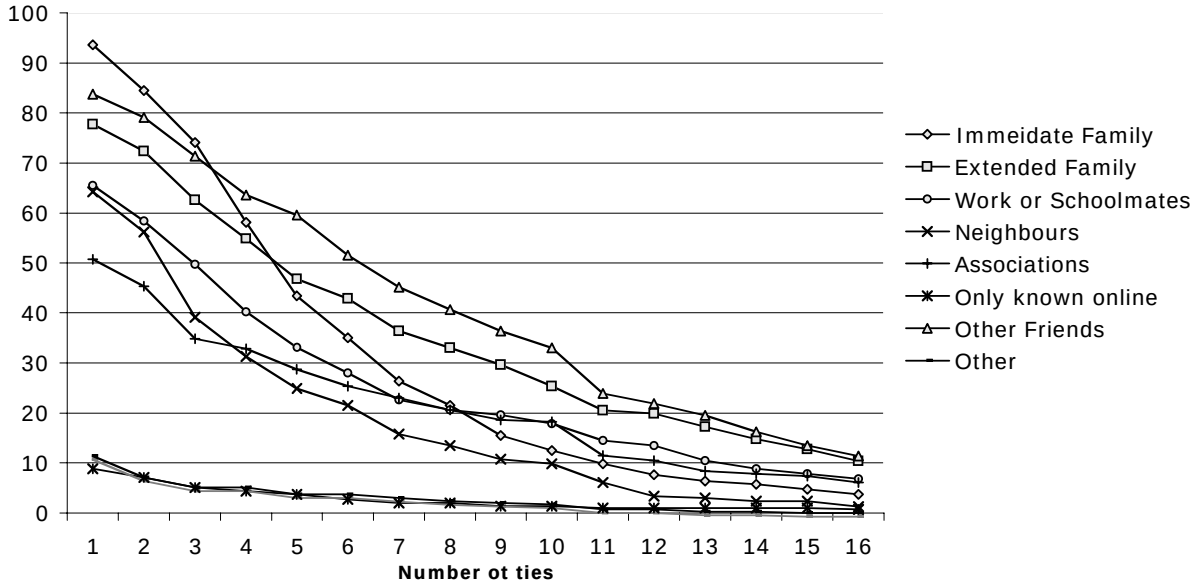


Figure 9: Percentage of respondents who have at least one or more network member by role

Second, the steep decline of the lines in Figure 9 suggests that there is a limit to the number of persons in a given role. For example, 96% have at least one immediate kin in their network, but only 40% have 5 or more. Similarly, 70% of people are close to at least one neighbour, but only 25% are close to five or more neighbours.

Third, people who are only contacted online rarely are socially close. Only 10% of the respondents report being close to people they only know online, and only 2% (4 respondents) report having being close to 8 or more ties exclusively online. Thus, the internet is not a separate

social system but is embedded in everyday life[20].

Communicating with Network Members [21]

How do people connect with network members, with and without ICTs? After asking about the raw numbers of people in the network we asked about the number of very close and somewhat close network members whom respondents contact: (1) at least weekly and (2) between weekly and monthly. Figure 10 shows that more ties are interacted with in person than by ICTs. However, the telephone and the internet are each widely used. Regular telephones are used somewhat more than mobile phones, and email is used much more than IM. We caution that these are profiles based on averages, and some respondents are, for example, frequent email users with many of their network members.

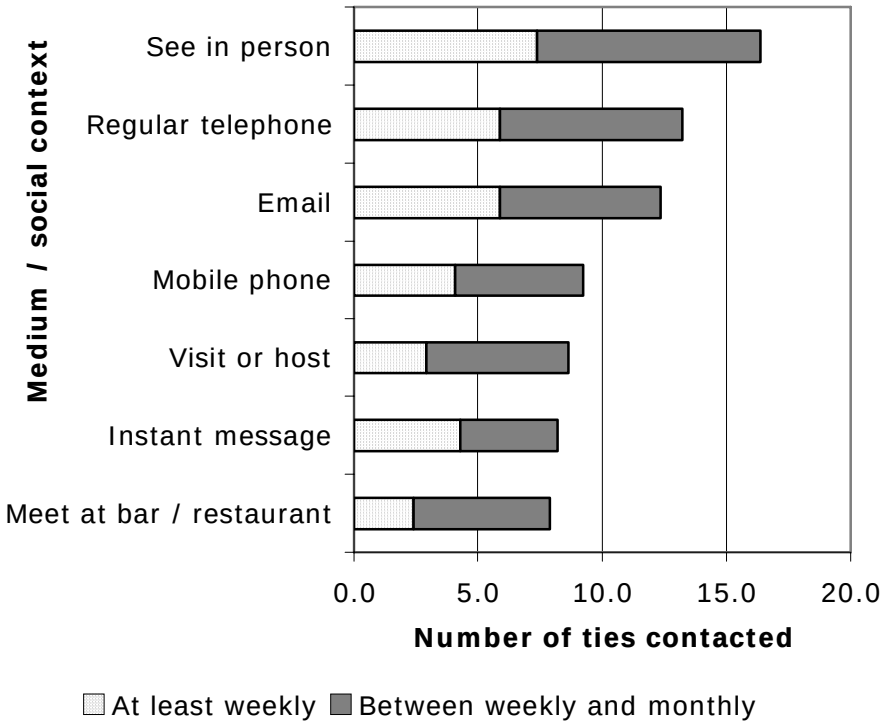


Figure 10: Mean frequency of contact with network members by media[22]

Some forms of interaction are more suited to a weekly rhythm while others are more suited to a less frequent rhythm. Respondents phone or email about half of their network members at least weekly and the other half less frequently. However, those people who visit or host network members are most apt to do so between once per week and once per month, as do those who meet network members at a bar or restaurant (Figure 10).

[20] See also Quan-Haase and Wellman, 2002; Chen, Boase and Wellman 2002; Wellman and Hogan, 2004; Hampton and Wellman, 2003.

[21] Jeffrey Boase and Bernie Hogan have major responsibility for this part of the Connected Lives project and drafted much of this section.

[22] Figure 10 shows only the means for people who use any of the aforementioned media. For example, the number of people using instant messaging is much lower than the number of people making in person contacts because instant messaging is not used by a majority of the sample.

These findings reinforce our claims about the internet and sociability. Email is a tool for frequent communication, and it is a means to communicate frequently with more people than might be seen at social events (see also Copher, Kanfer and Walker, 2002). The extent to which this assertion is really the case will be examined in future analyses of the interviews that have gathered more detailed information about communication and socializing among specific network members. For example, the interviews should show us if it is the same network members who are emailed at least weekly but only socialized with less often, or if emailing and socializing take place with different network members.

Keeping in contact with people requires time. Some media allow people to save time by maintaining contact with small gestures: forwarding jokes and pictures via email as simple bonding gestures. Moreover, email messages can be sent to a large number of people as quickly as they can be sent to a single person. By contrast, some other ICTs, such as mobile phones, require users to make contact one person at a time.

Our concern is not only with the amount of time used. Email, text messaging and some instant messages are asynchronous, meaning that there can be a time lag between the time that a message is sent and the time that it is received. Therefore, people can communicate around their schedule rather than letting the media dictate their schedule. This suggests that people with more ties than time may benefit from technologies that allow them to contact their community ties efficiently and conveniently.

The social affordances of email – such as asynchronicity, multiple message recipients and store-and-forward – can be especially useful as network size increases (Boase and Wellman, 2005; Wellman and Hogan, 2004a; Bradner, Kellogg and Erickson, 1998). Our survey data highlight these affordances by showing how email scales up much more effectively for large networks than mobile phones, instant messaging or regular telephones (Figure 11). In-person contact also scales up for people with large networks. People with large networks are more likely to drop-in on others, have many neighbours and participate in voluntary organizations – all social contexts that require little planning ahead of time and are efficient means of getting in contact with other people.

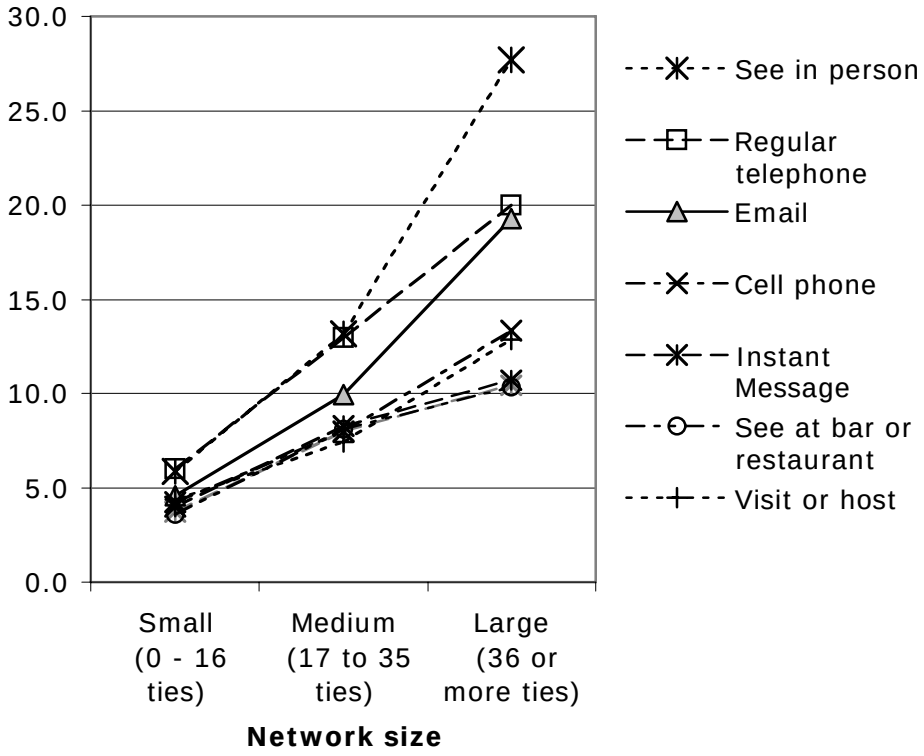


Figure 11: Number of ties contacted monthly by selected media by network size

Managing Networks[23]

Networked individualism means that people must actively manage their networks. Rather than sitting back and letting densely knit groups provide sociability, support and control, people must contact their ties and shop for support at relational boutiques rather than at general stores. Ling (2004) has argued that there are two principal forms of coordination: (1) making and revising schedules and arrangements; (2) managing social networks. The two forms intertwine. For example, earlier East York research has shown that people with large networks get more emotional and material aid – not only overall but from *each* network member (Wellman and Gulia, 1999a; Wellman and Frank, 2001). Such people may know how to manage their networks.

Network absorption is one way of managing: the capacity of an individual to bring a new tie into a network or to store information about that individual which will lead to more networking. This can involve participation in social contexts amenable to adding new ties, using media that lower the cost of interacting with more people, or using tools to remember who is in the network and how to get access to them. The Connected Lives project is measuring involvement in social milieus by asking about people's participation in activities such as neighbouring, visiting/hosting friends, and involvement in voluntary organizations or online chat groups.

People with large networks are on average more active than people with medium and small networks in virtually all the spheres discussed above (Figure 12). The only exception is that people with medium-sized networks congregate at regular hangouts slightly more frequently.

[23] Bernie Hogan has major responsibility for this part of the Connected Lives project and drafted much of this section.

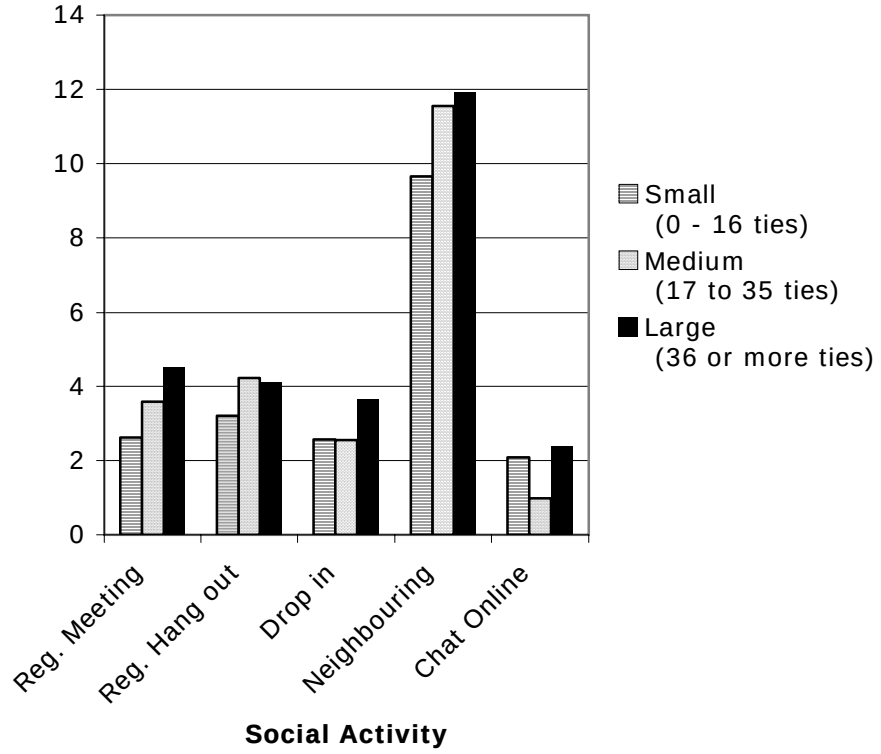


Figure 12: Mean days per month of social activity by overall network size (N=308)

We also surveyed the use of personal information management tools such as address books, calendars and personal digital assistants (PDAs). We hypothesize that one can more easily absorb a new tie if one can remember how to get in contact with that person. People use an average of three tools for personal information management in addition to their own memory: three for recalling telephone numbers and three for remembering occasions. For *remembering telephone numbers*, the most commonly used tools are the phone book, one's memory and a written address book of frequently called numbers. For *remembering occasions*, one's memory is the most popular, followed by a wall calendar in the home and reminders from others. For *remembering email addresses*, the most popular means are features that are embedded in the email program: an existing message, a computer address book and the auto-complete feature common on many email clients. This bodes well for email as a tool for network absorption. People do not need to recall email addresses, as computers will help them remember. It is easier to get access to a network member's email address while at an email program than to get access to a network member's phone number when using a phone.

Many of the most widely used tools are not necessarily the most frequently used tools. For example, most people use phone books but they do not use them often. The opposite can be said of PDAs that store addresses, notes, calendars, etc (e.g., *Palm*, *BlackBerry*, *Pocket PC*). Although only 14% of the respondents use PDAs, they usually use them heavily.

Table 5: Methods/tools to remember personal information: days per month

Phone Numbers	Days	Occasions	Days	Email Addresses	Days
Phone book (N=303)	5.4	Memory (N=310)	24.4	Existing msg. (N=262)	18.5
Memory (N=299)	22.3	Wall calendar (N=290)	16.2	Comp. program (N=211)	17.3
Rolodex (N=253)	12.9	Reminders (N=219)	8.2	Auto-complete (N=206)	21.1
Ask someone (N=246)	3.9	Post-its (N=190)	11.9	Memory (N=201)	15.6
Stored on phone (N=219)	20.7	Agenda (N=175)	18.7	Ask someone (N=183)	4.2
Post-its (N=202)	7.4	Comp. program (N=113)	15.1	The internet (N=161)	5.5
The internet (N=194)	6.4	Pocket calendar (N=106)	11.9	Post-its (N=141)	4.4
Comp. program (N=151)	10.2	PDA (N=49)	20.0	Rolodex (N=127)	8.5
PDA (N= 49)	18.4	Assistant (N=27)	15.4	PDA (N=45)	15.3

N = Number of respondents using the method or tool

Whatever devices people use for contacts, occasions and planning, they put that information to use through *network engagement*. Interaction with network members can take place in person or via many media. When in person it can take place in many social milieus, such as casually dropping in on friends or attending a regularly scheduled meeting. The social affordances of communication media can facilitate or constrain how interactions take place (Bradner, Kellogg and Erickson, 1999; Wellman, 2000; Wellman and Hogan, 2004). For example, email allows one person to broadcast messages to many others, whereas telephone calls typically take place between two persons. Answering machines and email allow people to communicate asynchronously, and some technologies are more mobile than others.

The more social milieus that people participate in, the larger their social networks. Nearly two-thirds (63%) of respondents report dropping in on their friends unannounced or only calling just ahead of time. Those respondents with drop-in privileges report having networks that are on average one-third larger: fully 12 more ties. Similarly, both the frequency of neighbouring and of attending regularly scheduled meetings are directly related to increases in network size.

It is probable that various aspects of network management can be related to the ideal types of community discussed earlier. Densely knit, village-like groups would have significantly more neighbours and kin. Hence, people in such solidary milieus would experience more dropping in, less planning, and perhaps less mediated contact. By contrast, in a network individualistic situation, activity and passivity are important for how people engage with their networks: do they invite or get invited; do they call or get called? People in such situations most likely rely more on ICTs because of their far-flung relationships, asynchronous schedules, and greater need to maintain their relationships one-by-one.

Networks, ICTs and Travel[24]

Linking Travel to Social Networks

Patterns of activity and travel are getting more complex throughout the world. Resonating with the shift towards networked individualism, there is a tendency towards increasing suburbanization of homes, shopping and employment; increasing car ownership; and an increasing number of trips with only one person in the car (Miller and Shalaby, 2003). As in many cities, personal travel in Toronto is becoming more mobile and car oriented, and mass transit systems are moving proportionately less of the population.

[24] Juan Carrasco has major responsibility for this part of the Connected Lives project and drafted much of this section.

Much travel is for socializing with network members. This is especially true for long-distance trips, In addition to the temporal and spatial constraints normally considered relevant for understanding social travel, analysts must take into account the nature of personal communities and the impact of ICTs. Individual trips are becoming even more prevalent as household members live on separate schedules and as communities become spatially dispersed networks of individuals rather than local groups.

Yet analysts have not studied the relationship of ICT use to travel to engage in social activities (Mokhtarian, et al., 2003). Earlier studies have focused on *substitution* effects: trade-offs between ICT and transportation in areas such as telework and shopping. This assumes that higher ICT use will mean less travel (Niles, 1994; Johnson, 1999). However, there has been scant empirical evidence for the presence of these substitution effects (Salomon, 1998). Analysts are coming to recognize that ICTs can have a potentially broader effect and play multiple roles in social travel (Senbil and Kitamura, 2003):

- *Complementary*: ICT use increases the number of trips to social activities through communication and coordination;
- *Modification*: ICT use leads to changes in the characteristics of travel or social activities, such as the duration of the trips and activities, the location of activities, and the planning horizon;
- *Neutral*: ICT has no effect on either travel or social activities.

The Connected Lives project has pursued such concerns by linking for the first time the study of social networks, ICTs, and activity and travel behaviour (see also Carrasco, et al., 2005). We ask if the quantity and type of ICT use – and the characteristics of personal community networks – enhance or diminish the frequency of social activities and the nature of travel to such activities. As people increasingly rely on ICTs for entertainment and communication, do they travel less? Or, does their virtual connectivity actually create more need for travel, as people arrange trips online or acquire information about new cultural or entertainment venues (Wellman and Gulia, 1999b; Wellman and Haythornthwaite, 2002)? What are the trade-offs between travel and communication in an increasingly ICT-pervaded world? What are the implications of changing travel behaviour for households, networks and the societies in which they are embedded?

Analysts currently try to explain the generation and spatial distribution of the social activities of individuals and households by:

- time and space opportunities and constraints
- individual and household characteristics, including stage in the lifecycle, ethnicity, psychological characteristics, and socioeconomic status
- the intrinsic attributes of the activity.

We believe that the generation and spatial distribution of social activities can be better understood by also knowing aspects of social networks, such as:

- who are the members of a personal community?
- where are the members of this personal community physically located?
- what is the level of ICT use?
- what is the association between ICT use and ties with community members?

Although there has been some recent discussion of relationships between social networks and travel, such discussion is still hypothetical (Axhausen, 2006). There is practically no evidence about the interplay of social networks, ICT use, and travel. Hence, one thrust of our analysis is to see if ICT use is associated with the physical distance of social activities. At the dawn of the internet age, hopes flourished that internet communication would foster a global village with far-flung friends and neighbours, and fears arose that these dispersed communications would diminish local community activities (Wellman and Gulia, 1999b; Kayahara, 2005). It now appears that while there has been an increase in spatially dispersed communication, ICT use has not substituted for neighbouring and may facilitate it.[25] It is time to develop more nuanced analyses: Does the nature of a person's social network intersect with ICT use to influence the physical distance and spatial distribution of social activities?

Has ICT use traded off with travel? We are finding that ICT use increases the number of social network ties, the amount of contact with those ties, and the spatial dispersion of such ties. But, how does it affect travel for social activities? One possibility is substitution: ICT use and travel could be fungible, so that as ICT use increases, travel decreases. We suspect the opposite possibility is more common: increased internet communication synergistically leads to increased travel, as the exchange of information on the internet provides more reasons for physical encounters: socializing, emotional support, and the exchange of goods and services. Online contact is best when intermittently reinforced and enhanced by physical contact (Wellman and Haythornthwaite, 2002).

Email, Spatial Location and Social Activities

The relationship between three phenomena is an example of how ICTs, social networks, and travel interact. We coded the three variables

- *Email use* (number of people with whom the individual interacts by email within a month): none, light, and heavy email use
- *Spatial location* of network members (number of neighbours and number of people living at more than one hour of distance): none, low, and high number
- *Social activities* (number of people with whom the individual performs social activities and travel, hosting and visiting): none, low, and high number.[26]

Email proves to be complementary to social activities (Table 6). Heavy email use is related to a high level of social activity, and low email contact is related to little or no social activity. Thus, email acts as a facilitator to perform social activities, and not as a substitute, suggesting that there is no trade-off between communicating by email and face-to-face social activities, but that there is more of a complementary relationship (see also Copher, Kanfer and Walker, 2002; Quan-Haase and Wellman, 2002).

[25] See Quan-Haase and Wellman, 2002; Chen, Boase and Wellman, 2002; Hampton and Wellman, 2003; Boase and Wellman, 2005

[26] "Light and heavy" as well as "low and high" levels are defined by dividing the sample in two approximately equal groups from those individuals who have some email use and those who have any network member in each category, respectively.

Table 6: **Email use and social activity**

		Social activities (# of ties hosted / visited within a month) None (A)+		Low: 1-6 (B)		High: 7+ (C)		Row percentage
# of ties sent or received email	None	33.3%		32.9%		28.9%		31.4%
	Low: 1-7	51.1%	(C*)	42.9%	(C*)	14.9%		33.4%
	High: 8+	15.6%		24.3%		56.1%	(A*B*)	35.1%

χ^2 = 43.9*, Tau b = 0.21, * = p<0.05

+ Labels (A), (B), (C), and their combinations in a given column, indicate a proportion that is statistically significantly higher in that column with respect to the corresponding labeled column(s)

Having more network members living relatively far away is also positively associated with being involved in more social activities (Table 7). Most of the people with a high number of network members living far away (i.e., more than one hour's travel) also have a high number of social activities. The opposite happens for those with a few or no network members living far away.

Table 7: Network spatial location and social activities by residential distance

		Social activities (# of ties hosted / visited within a month) None (A)+		Low: 1-6 (B)		High: 7+ (C)		Row percentage
Model 1: Far away								
# of ties living > 1 hour's travel	None	6.8%	(C*)	7.0%	(C*)	0.9%		5.0%
	Low: 1-7	63.6%	(C*)	52.1%	(C*)	28.1%		44.6%
	High: 8+	29.5%		40.0%		71.1%	(A*B*)	50.3%

χ^2 = 35.2*, Tau b = 0.31*, * = p < 0.05

Model 2: Neighbours								
# of ties who are neighbours	None	62.8%	(B*C*)	38.6%	(C*)	21.5%		35.8%
	Low: 1-4	27.9%		34.1%		31.8%		32.3%
	High: 4+	9.3%		27.3%	(A*)	46.7%	(A*B*)	31.9%

χ^2 = 30.7*, Tau b = 0.29, * = p < 0.05

+ Labels (A), (B), (C), and their combinations in a given column, indicate a proportion that is statistically significantly higher in that column with respect to the corresponding labeled column(s)

A similar phenomenon happens locally, although less strongly. The more neighbours in a network, the more social activities in which respondents engage. These similarities in two geographical scales – neighbour (local) and people at more than one hour (global) – resonate with the glocalization concept.

The combined effect of email use, spatial dispersion and social activities indicates that the complementary relationship between email and social activities is not mediated by the spatial dispersion of the social network. People with low email use tend to have little or no involvement in social activities. This is true for both networks that are mainly local or have much spatial dispersion. At the same time, people with high email use tend to be involved in much social activity, regardless of the spatial dispersion of their networks (Table 8). These findings suggest that ICTs are catalysts for social activities regardless of the spatial dispersion of social networks.

Table 8: Combined effects of email use, network spatial location, and social activities

# ties living >1 hour's travel	# ties sent or received email	Social activities (# of ties hosted / visited within a month) None (A)+	Low: 1-6 (B)	High: 7+ (C)	Row percentage
Low: 1-7	None	32.1%	38.4%	40.6%	37.6%
	Low: 1-7	53.6% (C*)	46.6% (C#)	21.9%	42.1%
	High: 8+	14.3%	15.1%	37.5%	20.3%
χ^2 = 10.8* , Tau b = 0.05, * = p < 0.05, # = p < 0.10					
High: 8+	None	38.5%	17.9%	23.5%	22.7%
	Low: 1-7	38.5% (C#)	41.1% (C*)	12.3%	25.3%
	High: 8+	23.1%	41.1%	64.2% (A*B*)	52.0%
χ^2 = 19.8*, Tau b = 0.20*, * = p < 0.05, # = p < 0.10					

+ Labels (A), (B), (C), and their combinations in a given column, indicate a proportion that is statistically significantly higher in that column with respect to the corresponding labeled column(s)

Finding Support and Information in Networks

Finding Social Support[27]

With the move from groups to networks, social support – emotional and material aid from others – has become more contingent on the nature of separate relationships. Where the village/neighbourhood once controlled and provided social support – as Hillary Clinton (1996) says, "It takes a village to raise a child" – such support is now provided by spatially and socially dispersed network members. Previous studies of East York have looked at the types of social support exchanged; identifying what types of people are more likely to give and get support. These studies have shown that support is largely supplied in discrete relationships rather than in groups, with different relationships specializing in the kind of support that they provide. For example, parents provide financial support, sisters provide emotional support, while spouses provide a wide range of support.[28]

With the proliferation of ICTs, timely questions include determining the effect of emerging technologies such as the internet and cell phones. Of equal importance are the evolving relationships between men and women, the potential impact of an aging baby-boomer generation and their relationship to other cohorts, and the effects of the high level of cultural diversity of East York, Toronto and indeed, cities across Canada and abroad

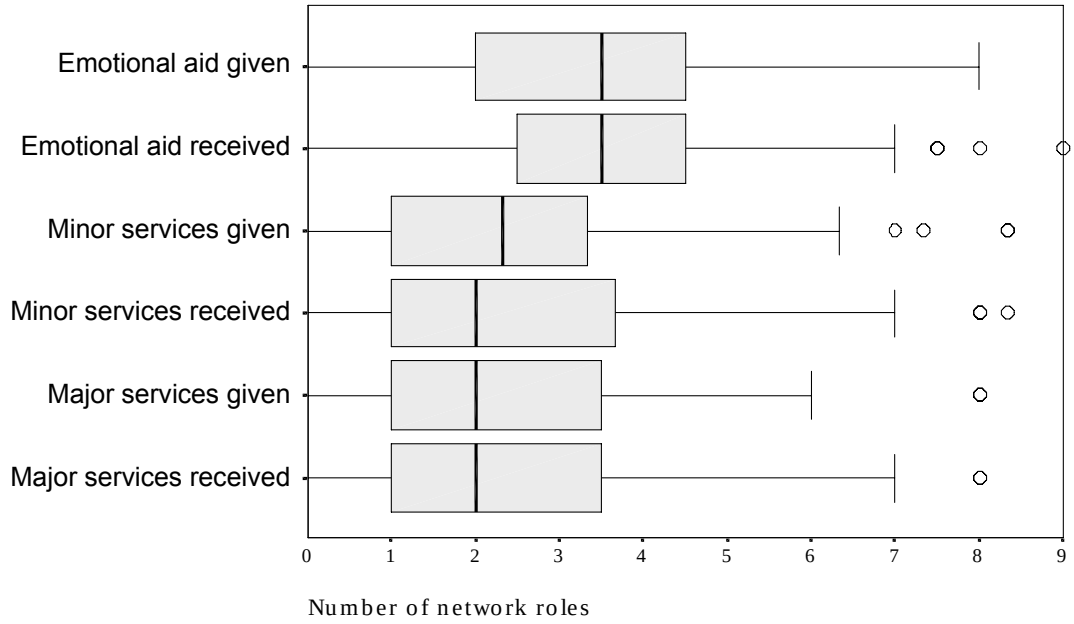
The social support questions in our survey ask respondents to identify the support they gave and received from a list of seven types. These combine into three overarching categories of support – emotional aid, minor services and major services, a result similar to the second East York study (Wellman and Wortley, 1990). Respondents also reported which of nine groups of people they gave and received support from: household members, immediate kin, extended kin, neighbours, workmates and schoolmates, people known only online, from voluntary organizations, other friends and "others". The measures of social support used here are the

[27] Rochelle Côté made a major contribution to this part of the Connected Lives project and drafted much of this section.

[28] See Wellman 1979; Wellman 1985; Wellman and Wortley, 1990; Wellman and Wellman, 1992; Wellman and Frank, 2001; Plickert, Wellman and Côté, 2004.

number of groups (household members, etc.) that respondents gave or received for emotional support, minor services and major services.[29]

The data show that East Yorkers continue supportive and supported people, as they have been for at least the 36 years since our first study (Wellman, 1979; Wellman and Wortley, 1990). They exchange different types of support with about one-third of available network resources. The relationship between giving and receiving is quite equal: People give to about as many sources in the network as they receive (Figure 12). For example, respondents give and receive social support from about 3 different relationships in their network or 33%. For the exchange of major and minor services, people give and receive support from roughly 2 sources in their network or 22%. The low score of 2 out of a possible 9 groups giving support shows role specialization in the provision of support that is similar to what NetLab found in its 1979 study (Wellman and Wortley, 1990). We caution that this is the number of roles providing support, and not the number of persons.



The solid bar inside each box is the median. The boxes themselves show the interquartile range: the number of ties contacted monthly by the middle 50% of the sample

Figure 12: Type of social support by number of roles

[29] The seven types of support used were advice on important matters, job advice, care for a serious health condition, help with home renovations, help with looking for health information, help with computer and talk/listen about the day with someone else. These forms of support were worded on the questionnaire to determine support *given* and support *received.* The summed total of support is a reflection of support given within the network. To illustrate the construction of the summed variables, "emotional aid given" used two variables. Therefore, the overall "emotional aid given" variable was created by summing b the nine role types that could have given each of the two types of emotional support. It was then divided by two to get a total out of nine possible sources of support. This ensures comparability between the three categories of support.

Multiple regressions identified several variables contributing to giving and receiving each type of support: gender, age, education, marital status, level of income, email frequency, and network size (Table 9).

Table 9: Regressions of social support by demographic and network characteristics

	Emotional Support Received		*Emotional Support Given*		*Minor Services Received*		*Minor Services Given*		*Major Services Received*		*Major Services Given*	
	B[+]	*β*	*B*	*β*	*B*	*β*	*B*	*β*	*B*	*β*	*B*	*β*
Female	0.15		0.01		-0.07		-0.34		0.04		-0.17	
		0.05		*0.00*		*-0.02*		*-0.11*		*0.01*		*-0.06*
Age	-0.01	[a]	-0.01		-0.03	**	-0.03	***	-0.01		-0.02	*
		-0.12		*-0.07*		*-0.21*		*-0.24*		*-0.11*		*-0.16*
Education	0.01		-0.02		-0.04		-0.09		0.04		-0.11	
		0.01		*-0.02*		*-0.04*		*-0.08*		*0.04*		*-0.10*
Married	0.33		0.06		-0.05		0.17		-0.19		0.15	
		0.10		*0.02*		*-0.02*		*0.05*		*-0.06*		*0.04*
Personal Income	0.01	[a]	0.01	*	0.00		0.00		0.00		0.01	
		0.14		*0.16*		*0.05*		*0.07*		*0.05*		*0.11*
Frequency of Email Use	-0.05		-0.01		-0.02		0.28		-0.19		0.03	
		-0.02		*-0.02*		*-0.01*		*0.09*		*-0.02*		*0.01*
# of Very Close Ties	0.35		0.04	***	0.04	*	0.04	**	0.06	***	0.06	***
		0.12		*0.26*		*0.20*		*0.22*		*0.32*		*0.34*
# of Somewhat Close Ties	0.81	***	0.02	*	0.01		0.01		0.01		0.00	
		0.28		*0.17*		*0.11*		*0.10*		*0.07*		*0.05*
Constant	1.84	***	3.11	***	3.24	***	3.09	***	2.23	***	2.69	***
Adjusted R^2	0.154		0.137		0.085		0.137		0.118		0.143	

[a] p<.10; * p< .05; ** p<.01; *** p<.001 N= 203 [+]B=unstandardized; β=standardized

The data reveal several discrepancies from previous research that showed women receiving more emotional support than men, and men more likely to exchange services than emotional support (Liebler and Sandefur, 2002; Perlman and Fehr, 1987; Wellman, 1985; Wellman and Wortley, 1990; Wellman and Frank, 2001). Our study does not find this gender gap. Men and women in East York do not differ significantly in the mean amount of emotional or material support they give or receive.

Consistent with the theory of networked individualism, it is the social network characteristic of the number of network members – and not the personal characteristics of people – that contributes to more support – and more diverse support. Larger numbers of very close and somewhat close ties increase support by increasing awareness and communication about needs, and coordination and social control to foster the delivery of aid.[30] Respondents with larger overall networks (very close + somewhat close) tend to provide and receive support from a wider range of "role types" (immediate kin, etc.) than those with smaller networks. When giving or receiving emotional support, respondents with large networks give to 14% more role types and receive from 13% more role types. Minor services are much the same: respondents with large networks give to 9% more role types and receive support from 7% more role types. They also provide major services to 10% more role types and receive major services from 9% more role types. Higher income levels correlate with network diversity (Erickson, 2003) and may explain why people with large networks exchange more support.

[30] House, Umberson and Landis, 1988; Hurlbert, Haines and Beggs, 2000; Kadushin, 2002; Erickson, 1996; Wellman and Gulia, 1999a; Molm, Takahashi and Peterson, 2000; Wellman & Wortley, 1990.

Large *very close* networks give and receive the most major and minor services, followed by large *somewhat close* networks. By contrast, it is large *somewhat close* networks that give and receive the most emotional support, followed by large *very close* networks. Thus, people are more apt to exchange emotional aid than services with network members who are only somewhat close to them.

In addition to the effects of social networks on support, some personal characteristics also affect the exchange of support. For example, age is especially associated with the exchange of services. Younger and early middle aged respondents (18-40) are more likely to give and receive major and minor services from many more individuals in their network: on average, from 30% to 50% of nine possible role types as compared to only 10% to 29% for those aged 60+ (see also Campbell and Lee, 1992; Haines, Hurlbert and Beggs, 1996). Younger adults also obtain support from more diverse role types in their network, whereas older adults rely more heavily on a smaller number of network members.

In the 1990s, theorists speculated that the limited "social presence" of text-based email would limit its use for emotional support (see Rice's review, 1993). Then, it became obvious through experience and research that ICTs are frequently used to provide emotional support, both interpersonally (email, IM, mobile phone) and via online support groups (Barrera, et al., 2002; Fogel, et al., 2002).

To investigate this, we use email frequency as an indicator of internet use and compare the supportiveness of non-users, low and high frequency users. To our surprise, email use is not significantly associated with the provision of social support, when compared to other factors, except for a marginal association of ICT use with the provision of minor services ($p > .10$). While non-users access a mean of only 20% of possible role types (1.8 role types actually accessed out of a possible 9), light users access 26% (2.3) and heavy users access 31% (2.8).[31] On the other hand, contrary to those who feared that time online would suck life out of relationships, email use does not diminish supportiveness.

Thus, email use diversifies access to different sources of support within social networks. It is an easy way of communicating bits of information and making arrangements such as job information or computer help. The more people are online, the more arranging and information providing they do. The argument that email provides less social presence than in-person contact is borne out to some extent by the comparatively greater association of ICTs with services rather than emotional support. It is not that ICTs provide less emotional support; it is that they facilitate more services rather than more emotional support.

Finding Health Information[32]

ICTs convey information as well as communication. Like communicating, finding information is affected by social phenomena. People differ markedly in their ability to find information online. Unlike the early years of the internet, women search as readily as men. But older people have less skill in doing web searches as do people with little technological experience (Hargittai, 2002a, 2002b). Such differences between individuals are more important

[31] We used the median frequency of emailing, twenty emails per week to differentiate "light" and "heavy" users. Nonusers are those who do email at all.

[32] Kristen Berg has major responsibility for this part of the Connected Lives project and drafted much of this section.

in networked individualistic situations where people may be less apt to have someone physically present to help them with their searches than they would in active neighbourhood groups.

How do people search for information online and offline? Is the turn away from groups and institutions to social networks associated with much reliance on interpersonal ties? Is the combination of widespread internet use and an abundance of information on the web leading to a reliance on online sources of information? Our research concern is with how people's social networks intersect with their ICT networks to provide them with information. We focus on two areas: health and culture. This section describes our health focus.

When dealing with a health issue for oneself or others, people look for relevant information and support from their families and social networks; health-care providers (doctors, homeopaths); specialized government, pharmaceutical and non-governmental organizations (such as Cancer Care Canada); and published sources (such as *Prostate Cancer for Dummies*, Lange et al., 2003).[33] ICTs can amplify many of these information sources, providing email information from friends and relatives and web information from organizations. It is also easy to find new sources of health information and social support from strangers via chat rooms and listservs (Fox, 2003; Gold, 2003).

The rise of ICTs makes it tempting to take for granted that people will use such tools extensively to inform themselves about health and discuss their concerns with interested others. With ICTs probably expanding the number and availability of social network members, ICTs may play key roles in providing information or support about health concerns especially for those who are technologically comfortable (Legris, Ingham and Collerette, 2003; Miyata, 2002). Two large national U.S. surveys have found that health information is one of the most frequently searched areas online (Fox 2003, 2005) Women are especially apt to go online to look for health information and to participate in discussion groups concerned with health (Pandey, Hart and Tiwary, 2003, Fox 2005). The most recent U.S. survey found that as more people gain prolonged internet experience and use broadband connections, the amoung and diversity of their health searching increases. In addition to searching for information about specific diseases, they are doing more expansive searches, using the internet to find out about well-being, nutrition and alternative forms of medical care. (Fox, 2005).

Given the possibility that going online for health information is a popular activity, are there patterns of ICT use for health concerns? We are investigating the importance of social network composition and structure, personal characteristics, and perceived ease of use (see Figure 7 above). To learn how respondents communicate about health, the Connected Lives survey asked:

> *Do you communicate about health concerns with either: a) a doctor or other health care professionals? b) friends or family members, or c) with individuals who share a similar health concern?*

Nearly one-third (31%) of the respondents communicate about health issues with friends or family members.[34] By contrast, only 9% communicate with health care professionals and 11% communicate with people who have similar health concerns. As Figure 7 above showed, people find it easy to find some sort of health information on the internet.

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[33] See also Statistics Canada, 2003; Pearlin, et al., 1995, Cohen and Syme, 1985; House, 1985; Thoits, 1995; Pescosolido, 1992; Wellman, Wellman and Lloyd, 1997.

[34] See Wellman, (1979); Wellman, Carrington and Hall (1988), and Wellman and Wortley (1990) for results from previous surveys in East York.

Large networks, high levels of emailing, and high interest in health issues are all associated with high levels of online communication about health. More specifically, the more very close and somewhat close friends that people have, the more they communicate with doctors and health care professionals. Correlation analysis suggests that the more email people send per week from their home and work, the more they communicate online with friends or family members about health issues. [$r = .243$, $p < 0.001$] Behaviour and attitudes are similar: a positive attitude towards the internet is related to more online communication with family and friends about health. [$r = .320$, $p < 0.001$] Furthermore, the more respondents find that the internet makes tasks easier, the more likely they are to communicate about health issues with health care professionals.

In sum, there are general associations between having larger networks, communicating online with friends and family, and communicating online about health. Our findings are consistent with what social scientists have called "the buffering model" (House, 1985): There is a relationship between the number of network ties, the total number of emails, and communicating health concerns online as well as offline. Moreover, the positive attitudes towards the internet operate in conjunction with network size and internet use to foster high levels of seeking information online and discussing health. That our data do not show male-female differences in communicating and seeking information about health online suggests that ICTs may be lessening the longstanding likelihood of women to specialize in this area.

Finding Culture[35]

Cultural knowledge and activities are strongly related to success in both school and jobs (e.g., DiMaggio, 1982, 1997; Bourdieu, 1984). The rise of ICTs, particularly the internet, has been accompanied by a massive increase in potential access to cultural information. Yet, such access is only meaningful if people actually use the internet for such purposes. Culture is a broad term that can encompass a vast array of concepts. For the purposes of our analysis, culture will be limited to leisure-type activities from both "high culture" and "popular culture" categories, including reading and writing; television and film; music; fine art; performing arts; and games and sports (Gans, 1974).

Studies of the relationship between culture and life outcomes suggest that the types of cultural knowledge people possess are also important in determining outcomes, although the relationship is more contingent and less straightforward than was once believed (Erickson, 1996). Given the importance of cultural knowledge and the ability of ICTs to expand access to information of all types, it is important to investigate how people are taking advantage of this new access for cultural purposes.

The popularity of the *Internet Movie Database*, *iTunes* and the *ESPN* sports website; online book vendors such as *Amazon* and *Chapters/Indigo*; and the websites of public libraries indicate that people are going online to engage with culture (defined broadly). However, relatively little research has been done on where they are going and what they are looking for. Much research on the connection between leisure, culture and the internet has tended to focus on exclusively online activities such as multiplayer games, virtual communities and online gambling (Rheingold, 2000; Reid, 1999; Bryce, 2001; Kendall, 2002; Griffiths and Parke, 2002; Chee and Smith, 2003). Others have looked at behaviours perceived as deviant, such as cyberporn (Mitchell, Finkelhor and Wolak, 2003; Stack, Wasserman and Kern, 2004) and its more mainstream cousin, cyberdating (Whitty, 2004; Baker, 2005; Whitty and Carr, 2006).

[35] Jennifer Kayahara has major responsibility for this part of the Connected Lives project and drafted much of this section. For more details, see Kayahara and Wellman, 2005.

This research, while valuable, is limited because it treats going online as a leisure activity unto itself and ignores the interplay between online and offline activities in everyday life. Interacting directly online is only one way that people can use the internet to access culture. In addition to providing a location for engaging in cultural and leisure activities, the internet can also facilitate access to information about new cultural activities through features such as book reviews; offer information that enables people to access culture offline, such as movie times; enable people to manufacture and share with others their own cultural activities such as photoblogs; and improve ease of communication about culture through email and instant messaging.

Gaps in the literature suggest some important questions. In general, we are concerned with where people get cultural information from and how they decide which cultural activities to consume. Our more specific, internet-focused questions are:

Who goes online in search of culture? What types of people are most likely to go online, and what types of people are least likely to do so?

For what kinds of cultural information are people searching? Included in this is the question of what types of online cultural activities are people engaging in? Are people interested in online cultural experiences, such as games and podcasts? Are they interested in supplementary information, such as biographies of musicians and reviews of books and movies? Or are they going after access to offline experiences, using the internet as a gateway to learn about – and buy tickets for – concerts and galleries?

To address these questions, interview participants were asked about how they use the internet to engage with their two favourite cultural activities. In addition, interviewers also observed users as they navigated through their favourite cultural sites (for more details, see Kayahara and Wellman, 2005).

The answer to the first question – who goes online for culture – is a majority of all interview participants and the great majority of internet users. Overall, 69% of interview participants use the internet for gathering information about cultural and leisure activities. This rises to 81% if the sample is limited to people who go online. This high participation rate means that internet users who use the internet for culture are virtually indistinguishable from internet users who do not. They tend to be younger and better educated than the interview participants as a whole, but that is a product of being internet users, and the effect disappears once internet use is controlled for. No demographic factor we checked is statistically significant: gender, employment status, relationship status, or the presence of children.

On the issue of what people are looking for online, we have learned a few things. First, people go online for a variety of cultural and leisure information, reflecting their diverse interests. The topics participants search for include: gardening tips, bird watching locations and sightings, online dance lessons and information about dance instructors, reading about foreign cultures, hints on winemaking, information about sailing, knitting and crocheting patterns, information about sports equipment, and buying photographs online from children's swim meets.

Second, information related to books and movies is relatively popular. This is consistent with an earlier study that found a positive correlation between internet use and pleasure reading, based partly on the fact that people sometimes go online to seek pleasurable reading (Griswold and Wright, 2004). Our data show that 8% of participants go online to look for book reviews or purchase books from *Amazon* or *Chapters/Indigo*, and 13% go in search of movie times, locations, or tickets. It is likely that even more people engage in these activities, since each

participant was only questioned about their top two cultural and leisure activities. The popularity of looking up books and movies online reflects the interests of the participants: 74% mention reading and writing as an interest and 68% percent mention television and film. This behaviour may also be influenced by the structure of websites that serve as portals to cultural and leisure information, as many sites feature items such as movie listings more prominently than items such as fine art shows (Hargittai, forthcoming).

Third, when deciding what cultural activities in which to engage, people often turn first to sources other than the internet for inspiration. The most frequently cited source of recommendations for new cultural activities are personal networks, mentioned by 71% of interview participants (Figure 13). Many value suggestions from friends and family. They can be personalized to individual tastes. This suggests that recent proposals for "social bookmarking" – automatically sharing information with others about popular websites – might be popular (Hargittai, 2005). As one participant explains:

> What people tell me [is more important than ads]. Like *The Incredibles*. We rent this movie. … But they [the children] didn't like it. The movie was okay for us, but not for children. It's about government…they were waiting for something to happen and finally they get tired. *[Participant 810]*

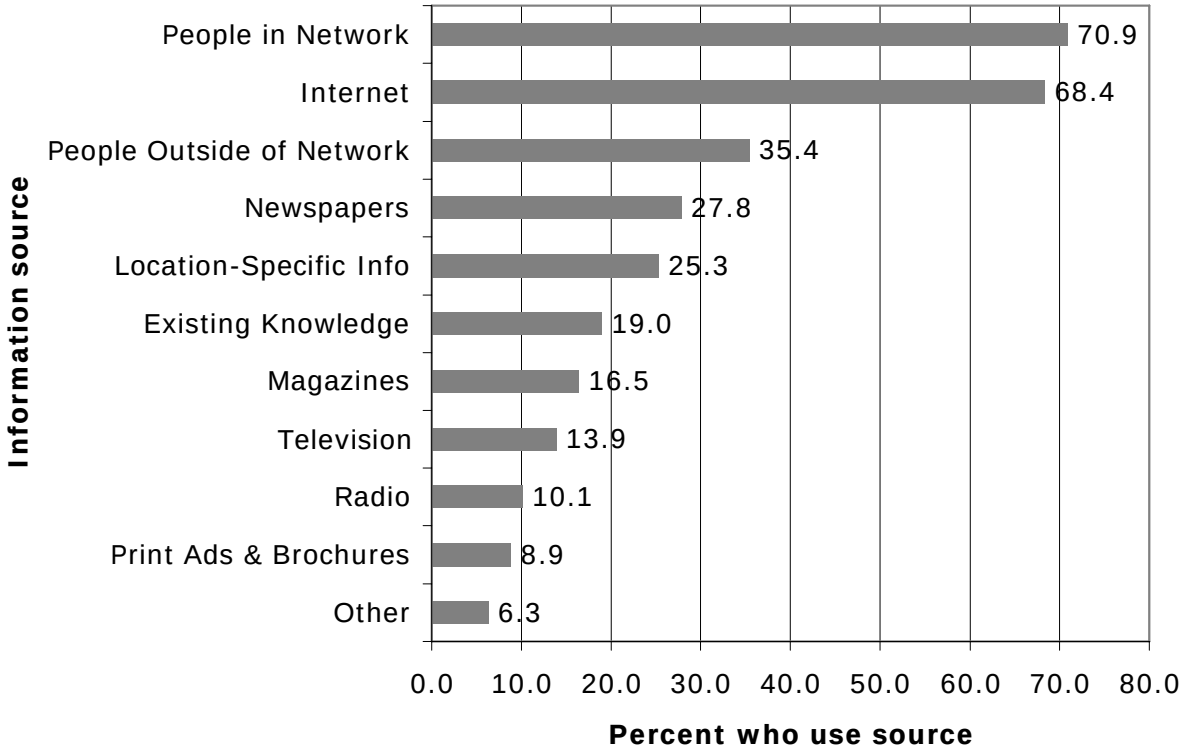

Figure 13: Sources of cultural information (N=79)

Not all participants value the recommendations from friends and family quite so much. One explains:

> I don't quite like everything [my sister] reads. Even though it's nice, I am not into that genre like Nora Roberts. I have read her books, they're nice but I'm not really into it. She likes Wicca and witch stuff; I've already been through that period. *[Participant 274]*

Participant 498 put it more succinctly:

> To each his own. Your tastes might be different from mine.

Those who prefer not to take advice from their social networks have a variety of other sources to which they turn, including existing knowledge of genres, authors, actors, or musicians (19%); location-based information gathered by scanning the bookshelves at the store or driving to the theatre to look at the listings (25%); listening to the radio (10%); or consulting print sources such as newspapers (38%).

It is after people have a recommendation or suggestion – from their network or from elsewhere – that they often turn to the internet for information. They usually seek specific information, such as upcoming performances by a favourite band, book reviews, or hotel prices for a summer vacation. This suggests that ICT-involved individuals are going beyond the longstanding theory of the "two-step flow of communication" (Lazarsfeld, et al., 1948; Katz and Lazarsfeld, 1954). The initial conception of this theory stated that most people are not directly influenced by messages from the mass media; instead, opinion leaders filter the messages and influence their followers through social networks (see also Weimann's critique, 1982). With the proliferation of ICTs, our findings suggest that while social networks remain influential in spreading the word about cultural matters, a large number of people are adding a step by taking the recommendations they receive from their social networks and going online to research these recommendations further. Such behaviour can result in a feedback spiral, where people learn something online and share it with friends who then go research it further online before sharing the information with others. It could also suggest an interruption in the traditional two-step pattern if people are going online and finding opinions that contradict the recommendations they receive from network members.

Connected Lives – On and Offline

This, our initial reconnoitring of Connected Lives, has found that ICTs have become part of everyday life in East York, Toronto, Canada – from mobile phones to the internet. Rather than the separate, often kinky, online-only virtual communities so beloved of the media,[36] we have discovered that most people use ICTs easily and routinely to find information and to contact family, friends and neighbours. Rather than special household shrines to personal computers, we have found computers sharing domestic space in living rooms, family rooms, and bedrooms. Even home offices – home to computers in nearly half of the households – are usually accessible to all household members.

The most popular time to use home computers (and the internet) is during traditional evening family hours. Even though all household members are not as likely to be at home as yesteryear for family dinners or gatherings around the television, people use mobile phones, IM and email extensively in order to contact them – be they across the continent or in the next room. Indeed using the internet to communicate with family, friends and acquaintances is second only to using it for work and school. Contrary to the pre-internet era, men do as much online communication at home as do women. Indeed, working online from home now takes a bit more of the average woman's time than does doing household chores. Men do about the same level of online work from their homes as do women but, as usual, they do less household chores.

The high level of ICT-based communication reflects the networked lives of household members and the continued strength of personal communities. East Yorkers have an average of

[36] "Have webcam, will copulate" reads a recent newspaper headline (Friesen, 2005).

nine very close members of their personal communities and fourteen somewhat close members. These are substantially higher numbers than when NetLab last measured network size in 1979 and 1968, although we caution that different network generators were used then to estimate network size (Wellman, 1979; Wellman and Wortley, 1990). Moreover, given the well-known ability of the internet to support even weaker ties, we suspect that the size of personal community networks is larger than it has been since the post-World War II move away from street corner neighbourhoods to castle-like detached suburban homes. Our data suggest a situation similar to Japan, where mobile phones are used extensively to keep in touch with extremely close ties – household members, friends, immediate kin, work partners – and to make local arrangements while the internet is used to keep in contact with ties ranging from the extremely close to acquaintances and strangers (Miyata, et al., 2005). Email scales up more effectively than the mobile phone to support more contact with more network members. In addition, rather than substituting for in-person contact, email lubricates and increases in-person contact, both locally and via long distance travel. And the data show that the larger the network, the more social activities.

Consistent with the theory of networked individualism, people get a variety of social support – major and minor goods and services as well as emotional support – but that support may be as specialized in 2004 as the second East York study found in 1979 (Wellman and Wortley, 1990). On average, only two or three role relations (friend, neighbour, etc.) give any one type of support (although multiple friends, etc. may be supportive). Emotional support flows as copiously to heavy email users as it does to non or light users (see also Copher, Kanfer and Walker, 2005). Contrary to early fears (detailed in Wellman and Gulia, 1999b; Kayahara, 2005), the internet does not turn people away from supportive ties. Moreover, the facilitative affordances of email appear to be associated with the greater extent of supportive services that heavy email users exchange. Where both the internet doomsayers (e.g., Stoll, 1995) and the community doomsayers (e.g., Putnam, 2000) have argued that things are falling apart, we believe that things are becoming more complicated and lively with the help of ICTs.

ICTs are information technologies as well as communication technologies. “We’re entering an era in which people are participating rather than just receiving information,” said Jonathan Swartz, president of Sun Microsystems (Knowledge@Wharton, 2005, p. 2). Our Connected Lives data agrees, showing that the internet is used extensively for finding a good deal of diverse information about health and culture. (We only asked about these two areas.) For example, the internet is second only to network members for providing cultural information, well more than any other means of providing information. The very nature of ICTs as both information and communication technologies means that these two domains are interpenetrating more than before. People discuss with network members what they have found on the internet. Similarly, people go to the internet (and mobile phones) to check out what they have heard from network members. Our interview participants describe multistep feedback spirals between network information and interpersonal information – communicated online and offline – that goes far beyond the traditional model of the two-step flow of information.

In short, as computer, communication and social networks have intertwined, ICTs have become part of the household and community. ICTs are increasingly being taken for granted. They are becoming part of the furniture, like the living room couch, and when they get old, they may hang around as coffee tables (Richtel and Markoff, 2005).

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