

## **Part I**

# **Moving the Internet out of Cyberspace**

# The Internet in Everyday Life

## An Introduction

Caroline Haythornthwaite  
and Barry Wellman

### **Abstract**

The changing presence of the Internet from a medium for elites to one in common use in our everyday lives raises important questions about its impact on access to resources, social interaction, and commitment to local community. This book brings together studies that cover the impact of “the Internet” in everyday life in the United States, Canada, Britain, Germany, India, Japan, and globally. These studies show the Internet as a complex landscape of applications, purposes, and users. This introduction begins by summarizing results from studies in this book and other recent research to provide an overview of the Internet population and its activities – statistics that help define and articulate the nature of the digital divide. We move from there to consideration of the social consequences of adding Internet activity to our daily lives, exploring how use of the Internet affects traditional social and communal behaviors such as communication with local family and commitment to geographical communities. We conclude with a look at how these studies also reveal the integration of the Internet in our everyday lives.

### *Authors' note*

We appreciate the help in compiling Internet data provided by Wenhong Chen, Uzma Jalaluddin, Monica Prijatelj, Uyen Quach, and Nathaniel Simpson. Our research has been supported by the Social Science and Humanities Research Council of Canada, Communications and Information Technology Ontario, IBM's Institute for Knowledge Management, the Office of Learning Technology (Human Resources Development Canada), Mitel Networks, and the University of Illinois Research Board. We give heartfelt thanks for the patience and support provided by Beverly Wellman to Barry Wellman, and by Alvan and Gillian Bregman to Caroline Haythornthwaite.

## The Dazzling Light

This book is about the second age of the Internet as it descends from the firmament and becomes embedded in everyday life. In the early 1990s, the first age of the Internet was a bright light shining above everyday concerns. It was a technological marvel bringing a new Enlightenment to transform the world, just as the printing press fostered the original Enlightenment a half-millennium ago in Renaissance times (McLuhan, 1962). As John Perry Barlow wrote in 1995, a long time ago as Internet trends go,

With the development of the Internet, and with the increasing pervasiveness of communication between networked computers, we are in the middle of the most transforming technological event since the capture of fire. I used to think that it was just the biggest thing since Gutenberg, but now I think you have to go back farther. (p. 36)

In those early days, the Internet was exciting because it was new and special. All things seemed possible. Internet initiates became avant-garde elites. While they extolled the virtues of the great changes in human endeavor to result from the Internet, others voiced grave concerns about these same changes. The very term “Internet” became a kind of “garbage can” – a receptacle for both fame and infamy relating to any electronic activity or societal change.

In the euphoria, many analysts lost their perspective. Most discussion of the Internet followed three types, making headlines even in reputable newspapers:

- 1 Announcements of technological developments, coupled with pronouncements of how this was going to change everybody’s lives (at least the lives of everyone in Silicon Valley who could afford it, with the rest of the world following soon afterward). Travelers’ tales, as if to the darkest Amazon, providing anecdotes about the weird and wonderful ways of Internet life, from cyber sex changes to the annual Burning Man ritual celebrations of technology in the Nevada desert (see <http://www.zpub.com/burn/>; Sterling, 1996)
- 2 Cautionary tales about the evils of wired life. Psychologists diagnosed “Internet addiction” on the basis of a few obsessive patients, and impersonators faked identities to “cyber-rape” online through exchanging personal secrets (e.g., Dibbell, 1993, 1996; Van Gelder, 1985, 1996)

Extolling the Internet to be such a transforming phenomenon, many analysts forgot to view it in perspective. For example, their breathless enthusiasm for the Internet led them to forget that long distance community ties had been flourishing for a generation (Wellman, 1999). They also assumed that only things that happened on the Internet were relevant to understanding the Internet. For example, “groupware” applications for people to work together usually assumed that all interactions would be online. Similarly, early studies of media use tended to consider only one medium, in isolation, and often relating to only one social context, rather than looking at use of all media and their multiple deployments (Haythornthwaite, 2001). Analyses have also often been implicitly (and somewhat Utopianly) egalitarian, rarely taking into account how differences in power and status affect how people communicate with each other. Throughout, analysts committed the fundamental sin of *particularism*, thinking of the Internet as a lived experience distinct from the rest of life. People were supposed to be immersed in online worlds unto themselves, separate from everyday life (Rheingold, 1993). Jacked into “cyberspace” (Gibson, 1984), their “second selves” would take over (Turkle, 1984). “Avatars” (cartoon bodies) would more accurately represent their inner, cyber-expressed personas (Webb, 2001). This often shaded into elitism, as only the small percentage of the technologically adept had the equipment, knowledge, desire and leisure to plunge so fully into cyberspace. Not surprisingly, these adepts were disproportionately white, middle-class, young adult men in major universities or organizations.

*The reality of the Internet is more important than the dazzle*

This all occurred a long time ago as Internet time goes. Just ask the once-mesmerized investors in technology stocks, who were blinded by the hyperlight until March 2000. The light has become less blinding, as dot.com flames dim down, special newspaper Internet sections disappear in the wake of instantly vanishing dot.com vanity ads, and the pages of *Wired* magazine (the *Vogue* of technoid trends) shrink 25 percent, from 240 pages in September 1996 to 180 pages in September 2001. The rapid contraction of the dot.com economy has brought down to earth the once-euphoric belief in the infinite possibility of Internet life.

It is not as if the Internet disappeared. Instead, the light that dazzled overhead has become embedded in everyday things. A reality check

is now underway about where the Internet fits into the ways in which people behave offline as well as online. We are moving from a world of Internet wizards to a world of ordinary people routinely using the Internet as an embedded part of their lives. It has become clear that the Internet is a very important thing, but not a special thing. In fact, it is being used more – by more people, in more countries, in more different ways (table I.1). Use is no longer dominated by white, young, North American men; access and use has diffused to the rest of the population and the rest of the world. Of these users,

- Almost all use email, with email rapidly becoming more used than the telephone.
- Almost all web surf. Moreover, web-surfers are spending more time online and using the Internet more often. In September 2001, Internet users spent an average of 10 hours and 19 minutes online, up 7 percent from the nine hours and 14 minutes recorded a year earlier (Macaluso, 2001).
- Many shop. E-commerce sales in the US for 2001 are estimated at \$32.6 billion dollars, up 19 percent from 2000. However they still account for only 1.0 percent of total sales (Pastore, 2002).
- Usenet members participated in more than 80,000 topic-oriented collective discussion groups in 2000. More than eight million participants posted 151 million messages (Marc Smith, personal communication, August 10, 2001; see also Smith, 1999; Dodger, 2001). This is more than three times the number identified on January 27, 1996 (Southwick, 1996).
- Although only a smaller percentage of Internet users play online games, their sheer numbers are enough to sustain a sizeable industry.
- Although data are hard to come by, Internet telephone accounts for 5.5 percent of international traffic in 2001 (ITU, 2001). Anecdotal evidence suggests there is a growing use of Internet phones in developing countries for connectivity within the countries and to overseas diasporas (Fernández-Maldonado, 2001; Christina Courtright, personal communication).

This book is a harbinger of a new way of thinking about the Internet: not as a special system but as routinely incorporated into everyday life. Unlike the many books and articles about cyber-this and cyber-that, this book represents the more important fact that the Internet is becoming embedded in everyday life. Already, a majority

**Table I.1** The top ten most popular Internet activities in the US, 2000

<i>Activity</i>	<i>% of Internet users</i>
1 Web-surfing or browsing	81.7
2 Email	81.6
3 Finding hobby information	57.2
4 Reading news	56.6
5 Finding entertainment information	54.3
6 Buying online	50.7
7 Finding travel information	45.8
8 Using instant messaging	39.6
9 Finding medical information	36.6
10 Playing games	33.0

Source: UCLA Internet Report: Surveying the Digital Future (US)

of North Americans are using the Internet, and the rest of the developed world will soon be there. In the developing world, community centers and cybercafes are helping the Internet move from an elite preserve to a way in which ordinary people can do business and chat with friends, quickly and cheaply (Fernández-Maldonado, 2001).

This pervasive, real-world Internet does not function on its own, but is embedded in the real-life things that people do. Just as all-Internet commerce is being supplanted by “clicks-and-mortars” (physical stores integrated with online activity), so too is most online community becoming one of the many ways in which people are connected – through face-to-face, phone and even postal contact. Now, the Internet is routinely used in both old and familiar ways, and new, innovative ones.

As the Internet becomes part of everyday existence and as exploiting it no longer seems to be the key to earning zillions, it is starting to be taken for granted. It is in danger of being ignored as boring just as the telephone was ignored for half a century even while it enhanced the ability of people to work and find community with others over long distances. Ignoring the Internet is as huge a mistake as seeing it as a savior. It is the boringness and routineness that makes the Internet important because this means that it is being pervasively incorporated into people’s lives. It is time for more differentiated analyses of the Internet that take into account how it has increasingly become embedded in everyday life.

The master issue in this book is whether the Internet – that brave new cyberworld – is drawing us away from everyday life or adding layers of connectivity and opportunity? Is it supporting new forms of human relationships or reproducing existing patterns of behavior?

- *Domestic relations*: Is the Internet providing new means of connectivity, or as Nie, Hillygus, and Erbring argue here, sucking people away from husbands, wives and children?
- *Community*: Is the lure of the Internet keeping people indoors so that their in-person (and even telephone) relationships with friends, neighbors, and kinfolk wither? Or is it enhancing connectivity so much that there is more interaction than ever before?
- *Civic involvements*: Does the Internet disconnect people from collective, civic enterprises so that they are connecting alone, as Robert Putnam (2000) has argued? Or is it leading people to new organizations and to increased involvement with existing organizations?
- *Alienation*: Is the Internet so stressful or disconnecting from daily life that people feel alienated? Or, does their sense of community increase because of the interactions they have online?
- *Activities*: Is the Internet replacing or enhancing everyday pursuits, be it shopping or getting companionship and social support?
- *Work*: What happens when people move home to work online? How does their connectivity with peers, clients, and their employing organizations change?

Such questions challenge us to build a picture of Internet use that separates the impact of the Internet from our existing behaviors, yet integrates its use with these behaviors. Much existing research on computer-mediated communication and online behavior has laid out differences between computer-mediated and face-to-face communication, and provided in-depth reports on online communities. While important research has been done from this perspective, the concentration on computer-mediated versus face-to-face, online versus offline, and virtual versus real, has perpetuated a dichotomized view of human behavior. Such either/or dichotomies pit one form of computer-mediated communication against another, e.g. synchronous versus asynchronous communication (e.g., chat versus email), text versus graphics, as well as one category of human endeavor against another, such as computer use at work versus home, online content for adults versus children, and computer and Internet users versus

non-users. A growing body of research – including the work presented here – is now examining more integrative views of computer mediated communication, looking at how online time fits with and complements other aspects of the individual's everyday life.<sup>1</sup>

Important trends are intersecting with the impact of the Internet on people's everyday lives:

- *Increasing access:* A rapid increase in the number of users gaining access to and using the Internet: for example, Katz, Rice, and Aspden (2001) found 8 percent of their sample using the Internet in 1995 (sample of 2,500 adults in the US) and 65 percent in 2000 (sample of 1,305 adults).
- *Increasing commitment:* Users of the Internet are showing an increasing exposure and commitment to Internet-based activity. They are spending more time online and doing more types of things. Furthermore, the more years they use the Internet, the more involved they are (Chen, Boase, and Wellman; Howard, Rainie, and Jones; Nie, Hillygus and Erbring; see also Horrigan and Rainie, 2002). Current estimates put the average American using the Internet over nine hours a week (UCLA Center for Communication Policy (CCP), 2000; Horrigan and Rainie, 2002)
- *Domestication:* While a large proportion of Internet use is work related (UCLA CCP, 2000), the use of the Internet at home is increasing its "domestication" (Anderson and Tracey; Chen, Boase, and Wellman; Haythornthwaite and Kazmer; Nie, Hillygus, and Erbring; Salaff; see also Kraut, Kiesler, Mukhopadhyay, Scherlis, and Patterson, 1998).
- *Longer work hours:* People are not only using the Internet from home (and to a lesser extent from public places such as cybercafes), they are bringing their work home. Wired Silas Marners are increasing their work days to nights and weekends. The question remains: Is the use of the Internet at home bringing families together or diverting individuals from household relationships? (Nie, Hillygus, and Erbring; Salaff; Scabner, 2001; see also Horrigan and Rainie, 2002; Nie and Erbring, 2000).

1 For reviews of research on computer-mediated communication see DiMaggio, Hargittai, Neuman, and Robinson 2001; Haythornthwaite, Wellman, and Garton, 1998; Jones, 1995, 1998; Kiesler, 1997; Lievrouw, Bucy, Finn, Frindte, Gershon, Haythornthwaite, Kohler, Metz, and Sundar, 2001; Smith and Kollock, 1999; Wellman and Gulia, 1999; Wellman, 2001; Wellman, Salaff, Dimitrova, Garton, Gulia, and Haythornthwaite, 1996.



- *School work*: Using the Internet in conjunction with school work by adult learners, university students, and households with children (Hampton and Wellman, 2002; Haythornthwaite and Kazmer; Kraut, Kiesler, Mukhopadhyay, Scherlis, and Patterson, 1998). Presence of children in the household is cited as a key reason many adults invest in computers and Internet access. For example, Statistics Canada (2000) reports a much higher rate of interest in and connection to the Internet among households with unmarried children under 18: 59 percent of Canadian single-family households with unmarried children under 18 were connected to the Internet in 1999, compared to 39 percent for other single-family households. In 1999, 40 percent of households with children were connected from home, nearly twice the proportion in 1997.
- *Keeping up*: Dealing with a need to “keep up,” reported by non-users as the number one reason for becoming an Internet user (Katz and Aspden, 1997; Katz and Rice; Kraut, Kiesler et al., 1998). For example, half of those North Americans who are not online say they would like to be if they had the funds and the ability (Reddick, Boucher, and Groseillers, 2000; Wellman, Wilkes, Fong, and Kew, 2002).
- *A networked society*: A move from a group-based society to a networked society (Castells, 2000; Putnam, 2000; Wellman, 2001). Rather than functioning in discrete, bounded groups – at home, in the community, at work, in organizations – people move as individuals between various fuzzily bounded networks.

This book brings together studies from the United States – the mother ship of the Internet – as well as Canada, Britain, Germany, India, Japan, and globally that examine the impact of “the Internet” in everyday life. The authors have in common the acceptance of the wholeness of human experience, and the idea that the Internet cannot be separated from ongoing activity. They take an integrative approach, using empirical research to assess the Internet as a social phenomenon.

The book shows that the Internet is a complex landscape of applications and purposes, and users. It helps to build a picture that situates Internet use in the rest of peoples’ lives, including the friends with whom they interact, the technologies they have around them, their “lifestage and lifestyle” (Anderson and Tracey), and their offline community (see Chen, Boase, and Wellman; Hampton and Wellman; Kavanaugh and Patterson; Matei and Ball-Rokeach; Quan-Haase and Wellman). To keep things manageable in size and coherent in content,

we have deliberately excluded studies of work and workplaces, except for Salaff's study of how teleworkers operate from their homes.

Understanding people's Internet use must take into account people's non-Internet attributes and behavior. For example, it is neither accidental nor trivial that men with higher incomes and higher education levels were the early adopters of the Internet, and that their lifestyles set some of the norms ("netiquette") for behavior online (see also Boneva and Kraut). Multiple interactions and responsibilities, both online and offline, compose people's activities, relationships, and community. We want to identify patterns of successful integration (see Howard, Rainie, and Jones; Haythornthwaite and Kazmer; Salaff) as well as unsuccessful patterns (e.g., Kraut, Patterson, Lundmark, Kiesler, Mukhopadhyay, and Scherlis, 1998).

Moreover, our picture and our task are not complete without also considering those who do not have access to the Internet, who use it little, or who have lost access to it (Chen, Boase, and Wellman; Katz and Rice). It is important to examine how the increasing presence and importance of the Internet in the everyday lives of those with access separates others from the ongoing social, economic, and commercial activity the Internet supports, and creates or perpetuates an existing social divide.

In the rest of this introductory chapter, we provide an overview of the Internet in everyday life based on the research presented in this book (see table I.2) and in other recent studies. We begin with a look at who is online. This also shows who is coming online and who has not yet come online, and what they are doing online. Access and use statistics help define and articulate the nature of the digital divide. We move from there to the social consequences of adding Internet activity to our daily lives, exploring how use of the Internet affects traditional social and communal behaviors, such as communication with local family and commitment to geographical communities. We conclude with a look at how the Internet is integrating into our everyday lives, and transforming them.

## **Concerns about the Digital Divide**

### *The size of the Internet population*

With well over 500 million Internet users (Nua, 2002) at the time of writing (early 2002; the number surely will be higher by the time you

**Table I.2** Studies, countries, chapter authors, and websites

<i>Study name</i>	<i>Country</i>	<i>Chapter authors</i>	<i>Website</i>
Blacksburg Electronic Village	US	Kavanaugh and Patterson	<a href="http://www.bev.net/research/">http://www.bev.net/research/</a>
Digital Living	UK	Anderson and Tracey	<a href="http://www.essex.ac.uk/chimera/people/ben_anderson.html">http://www.essex.ac.uk/chimera/people/ben_anderson.html</a>
German Socio-economic Panel (GSOEP)	Germany	Wagner, Pischner, and Haisken-DeNew	<a href="http://www.diw.de/english/sop/aktuelles/stata.html">http://www.diw.de/english/sop/aktuelles/stata.html</a>
Homenet	US	Boneva and Kraut	<a href="http://homenet.hcii.cs.cmu.edu/progress/index.html">http://homenet.hcii.cs.cmu.edu/progress/index.html</a>
LEEP Distance Education	US	Haythornthwaite and Kazmer	<a href="http://www.lis.uiuc.edu/gslis/degrees/leep.html">http://www.lis.uiuc.edu/gslis/degrees/leep.html</a>
Metamorphosis	US	Matei and Ball-Rokeach	<a href="http://www.metamorph.org/">http://www.metamorph.org/</a>
National Geographic Survey 2000	Canada	Quan-Haase and Wellman;	<a href="http://www.nationalgeographic.com">http://www.nationalgeographic.com</a>
Netville Wired Suburb	Global	Chen, Boase and Wellman	
	Canada	Hampton and Wellman	
Pew Internet and American Life	US	Howard, Rainie, and Jones; Boneva and Kraut	<a href="http://www.chass.utoronto.ca/~wellman">http://www.chass.utoronto.ca/~wellman</a> <a href="http://web.mit.edu/knh/www/">http://web.mit.edu/knh/www/</a> <a href="http://www.pewinternet.org/">http://www.pewinternet.org/</a>
Science and Technology in the Third World	India	Davidson, Sooryamoorthy, and Shrum	<a href="http://www.lsu.edu/sociology/faculty/shrum.html">http://www.lsu.edu/sociology/faculty/shrum.html</a>
Social Support for Japanese Mothers	Japan	Miyata	<a href="http://www.meijigakuin.ac.jp/~miyata/">http://www.meijigakuin.ac.jp/~miyata/</a>
Stanford Institute for the Quantitative Study of Society (SIQSS) Internet and Society Study	US	Nie, Hillygus, and Erbring	<a href="http://www.stanford.edu/group/siqss/">http://www.stanford.edu/group/siqss/</a>
Syntopia	US	Katz and Rice	<a href="http://www.scils.rutgers.edu/~rrice/syntopia.htm">http://www.scils.rutgers.edu/~rrice/syntopia.htm</a>
Technology Research Group	US	Copher, Kanfer, and Walker	<a href="http://archive.ncsa.uiuc.edu/edu/trg/">http://archive.ncsa.uiuc.edu/edu/trg/</a>
UCLA Center for Communication Policy	US	Lunn and Suman	<a href="http://ccp.ucla.edu/pages/internet-report.asp">http://ccp.ucla.edu/pages/internet-report.asp</a>
World Internet			
University of Maryland WebUse Data Archives	US	Robinson, Kestnbaum, Neustadt and Alvarez; Neustadt et al.	<a href="http://www.webuse.umd.edu/">http://www.webuse.umd.edu/</a>

are reading this), the Internet is no longer the expensive high-tech toy of corporate elites and university professors. It has become the routine appliance of a large chunk of the developed world and a sizeable portion of the developing world (Chen, Boase, and Wellman). Even those who do not use the Internet themselves, benefit indirectly: Friends relay messages from other friends; children abroad use the Internet phone to speak to family in the home country; parents ask children to search the web for shopping information; gossip revolves around news gleaned online.

That the Internet is here to stay and spreading rapidly creates a pressing need to understand and prepare for its impact. The statistics available about the Internet, and those presented in many of the studies in this volume, document the rapid growth in use of the Internet. An "educated guess" (Nua, 2002) places the number of Internet users at 513 million for August 2001, up from 16 million in December 1995. (Nielsen NetRatings, 2002, while in rough accord with these figures puts the number of [undefined] "active users" at 260,112,760.) The users comprise 181 million from the US and Canada (35 percent), 155 million from Europe (30 percent) and 144 million from Asia/Pacific (28 percent).

Nua's compilation of Internet use data (table I.3) shows that 166 million Americans have Internet access, 60 percent of the population. Somewhat earlier reports show 55 percent online on a typical day (Howard, Rainie, and Jones), and 55,000 new users each day (UCLA CCP, 2000); 65 percent of US households have a computer, 43 percent with access to the Internet, and 55 percent of Americans with access to the Internet from home or elsewhere (Nie and Erbring, 2000). Canadians have similar profiles: 14 million use the Internet, 46 percent of the population. Somewhat earlier data showed 4.9 million Canadian households with an individual who used the Internet from any location (42 percent of all households in 1999, compared to 29 percent in 1997), and 3.4 million households (29 percent) with use at home (compared to 16 percent in 1997; Statistics Canada, 2000).

The United States does not dominate Internet use nearly as much as it used to, with at least 64 percent of Internet users living elsewhere (Nua, 2001b). Other developed countries now also have high rates of use (table I.3): Sweden is the only country showing a higher percentage of users than the US: 64 percent of the Swedish population (5.6 million) are Internet users, followed by 55 percent in Denmark, 55 percent in Hong Kong, and 52 percent in Australia (note that the list is indicative, not comprehensive). In the United Kingdom (Britain), 33

**Table I.3** Number of people and % of population using the Internet, 1999 and 2001, selected countries

Country	Number of people using the Internet in 2001 (month) <sup>b</sup>	% of population using the Internet in 2001 <sup>b</sup>	% of population using the Internet in 1999 <sup>a</sup>
Argentina	3.88 m (July)	10.38	3
Australia	10.06 m (Aug.)	52.49	32
Brazil	11.94 m (July)	6.84	2
Bulgaria	585,000 (April)	7.59	2.57 <sup>b</sup>
Canada	14.44 m (July)	45.71	36
China	26.50 m (July)	2.08	0.56 <sup>b</sup>
Denmark	2.93 m (July)	54.74	28
Egypt	560,000 (Mar.)	0.81	0.6 <sup>b</sup>
Finland	2.27 <sup>c</sup> m (Aug.)	43.93 <sup>c</sup>	33
France	11.70 m (Aug.)	19.65	10
Germany	28.64 m (Aug.)	34.49	19
Hong Kong	3.93 m (July)	54.5	25
India	5.00 m (Dec.)	0.49	0.2
Iran	250,000 <sup>c</sup> (Dec.)	0.38 <sup>c</sup>	0.15 <sup>b</sup>
Iraq	125,000 <sup>c</sup> (Dec.)	0.05 <sup>c</sup>	NA
Israel	1.94 m (July)	17.12	16
Japan	47.08 <sup>c</sup> m (Dec.)	37.2 <sup>c</sup>	15
Kenya	200,000 <sup>c</sup> (Dec.)	0.66 <sup>c</sup>	0.16 <sup>b</sup>
Mexico	3.42 m (July)	3.36	3
Norway	2.45 m (July)	54.4	45
Russia	9.20 <sup>c</sup> m (Aug.)	6.3 <sup>c</sup>	3.69 <sup>b</sup>
Saudi Arabia	570,000 (Mar.)	2.5	0.52 <sup>b</sup>
South Africa	2.40 <sup>c</sup> m (Dec.)	5.53 <sup>c</sup>	3.74 <sup>b</sup>
South Korea	22.23 m (July)	46.4	21.33
Spain	7.38 m (July)	18.43	7
Sweden	5.64 m <sup>c</sup> (July)	63.55 <sup>c</sup>	41
UK	33.00 m (June)	55.32	21
US	166.14 m (Aug.)	59.75	40

Source: <sup>a</sup> World Employment Report 2001: *Life at Work in the Information Economy*. International Labor Office, Geneva, Switzerland, 2001.

<sup>b</sup> Nua, [http://www.nua.ie/surveys/how\\_many\\_online/](http://www.nua.ie/surveys/how_many_online/). <sup>c</sup> Data available for 2000 only.

million people have access (Nua, 2002), comprising 55 percent of the population. Somewhat earlier data shows 20.5 million UK adults with home access in 2000, 80 percent of whom had accessed the Internet in the last month (National Statistics Omnibus, 2000), three times the number of households connected in 1998. And, although some still

consider South Korea to be a developing country, its Internet use is developed, with its 22 million users comprising 46 percent of the population.

The situation is more complex for developing countries (table I.3). Populous China and India show the danger of confusing percentages and absolute numbers: China has only 2 percent of the population online, but these total more than 26 million users. India's 0.5 percent of the population online nevertheless comprise 5 million users, almost the same number as Sweden. Brazil (7.6 percent, 11.9 million) and South Africa (5.5 percent; 2.4 million) have relatively high penetration rates. To be sure, some countries have tiny percentages and numbers of Internet users: Of the countries summarized in table I.3, Egypt, Iran, Iraq, Saudi Arabia, online users in each comprise less than 1 percent of the population and less than 1 million people.

#### *Differences in use*

Great though the percentages and numbers are in developed countries, they indicate that even in such countries a large proportion of people are not connected to the Internet, do not know about it, have no interest in using it, have no affordable access to it, or have poor infrastructural support for it. The large social phenomenon of the Internet is passing some by, and for better or worse, that sector is failing to gain access to the resources available to those with access to the Internet (Katz and Rice).

In the US, differences in access show rural and poor populations to be under represented in Internet access and use. This difference between the haves and have nots in Internet access has become known as the "digital divide" (see the *Falling Through the Net* series by the US National Telecommunications and Information Administration (NTIA), 2000, 2002; see also Sawney, 2000; Strover, forthcoming; Birdsall, 2000; Reddick, 2001; Wellman, Wilkes, Fong, and Kew, 2003).

The term has also been applied more globally to consider differences between the have and have not nations, or members of those nations (see Chen, Boase, and Wellman; Hargittai and Centeno, 2001). For example, Davidson, Sooryamoorthy and Shrum evocatively describe what it is like to use the Internet in Kerala, India, where a research center's phone connection may be two miles away, and where connectivity may be only "theoretical," e.g., a planned connection that

is not yet available, an established connection that is not in working order, or a connection with a speed too slow for practical use. The arguments about the role of the Internet in developing countries that they describe may as easily be applied to any country. Is the Internet an “elixir” (an opportunity), or an “affliction” (an “engine of global inequality”), or is it merely suffering from “teething troubles” on its way to integration in everyday life (see Davidson, Sooryamoorthy, and Shrum)?

Although there is evidence that the digital divide in developed countries is shrinking (Chen, Boase, and Wellman; Wellman, Wilkes, Fong, and Kew, 2002), not all studies concur. Nie and Erbring (2000) find difference in access and use particularly pronounced across education and age, as do Wagner, Pischner, and Haisken-DeNew in Germany. Katz and Rice find that differences still persist across gender, age, household income, education and race, although these differences disappear after controlling for awareness of the Internet. They also find that for recent cohorts of adopters, differences across gender and race also disappear.

Moreover, the divide is not one line splitting people into two distinct groups, and is not bridged by one program or policy decision. Marginalized community members, whether marginalized by income, gender, race, or sexual orientation, have different needs with respect to the Internet. There is a need for an action research perspective to understand and ameliorate the needs of marginalized users and guide them through their own “teething troubles” (Mehra, Merkel, and Bishop, 2002; Pinkett, 2001).

### *Who is online?*

Of those who have *access* to the Internet, US and Canadian users are almost evenly split between men and women, but with higher numbers of younger users, whites, urban, higher incomes, higher education levels, and more years of access (Howard, Rainie, and Jones; Kavanaugh and Patterson; Nie, Hillygus, and Erbring; Quan-Haase and Wellman; UCLA CCP, 2000; Nielsen NetRatings quoted in Nua, 2001a). Previously in North America – and currently in the rest of the world – more men than women are likely to use the Internet (Chen, Boase, and Wellman; Katz and Rice; National Statistics Omnibus, 2000).

The greatest change in Internet access over time is observed in the previously under-represented groups: Katz and Rice, comparing across cohorts of users in the US based on the year they began to use the Internet (from 1992 to 2000), find that the percentage of women, users over 40, lower income earners, and non-college graduates has increased most over these years (see also Nua, 2001a). Similarly, Statistics Canada (2000) reports the highest growth rate in Internet use and home connections for 1999 occurred in older age groups: households headed by seniors 65 and over, followed by households headed by individuals 55 to 64. However, their numbers still show fewer regular users in these households compared to younger households (one-tenth of households headed by adults over 65 had a regular Internet user, one-third for the 55–64 year olds, and one-half for younger households). Similarly, Nie and Erbring (2000) find much lower access among those over 65 compared to those under 65.

As statistics on access show a shrinking digital divide, differences in use become more important for understanding overall Internet activity. Howard, Rainie, and Jones show that on any particular day, of those who have access, more of the men, whites, higher income earners, higher educated and more experienced users are likely to be online. For example, 57 percent of men with access will be online compared to 52 percent of the women with access; 56 percent of whites compared to 36 percent of African-Americans, and 49 percent of Hispanics with access (see also Nua, 2001a). Thus, focusing on access alone masks continuing digital divide differences. Similarly, while access as a single measure suggests greater numbers of younger people online, older users are online for more hours. This may be because of use associated with work (UCLA CCP, 2000), and the way work hours have crept into home hours (Nie and Erbring, 2000). Yet, Anderson and Tracey find some British users of retirement age to be heavy users, and Nie and Erbring (2000) also find retired users spend nearly two hours more a week using the Internet than non-retired users.

Across all studies, the largest and most significant differences in access and use are related to years of experience. Those who have been online longer spend more time online each day, and are more likely to be online on any particular day. These *netizens* (Howard, Rainie, and Jones; see also Hauben, 1996; Schuler, 1997) represent the most active and accomplished users. They are the ones who engage in the most kinds of online activities (for specifics on activity differences across



demographic characteristics, see the studies in this book; Nie and Erbring, 2000; UCLA CCP, 2000).

As several authors point out, since all users are getting more experience online, these advanced users potentially show the direction in which Internet use is evolving. Thus, they are an important group to watch. However, it is important to note that at this time in Internet history these users still represent early adopters, for even when a majority of the population use the Internet, many do not make skilled or regular use of it. Many studies have shown that behaviors and characteristics of such users differ from those of the later majority of adopters: early adopters are more cosmopolitan, more socially active, and have higher incomes and education (Rogers, 1995; Valente, 1995). Not coincidentally, these are characteristics of longtime Internet users. Indeed several authors point out that the positive social impacts of the Internet may reflect attributes of the users rather than any true impact of the Internet itself (see Nie, 2001; Howard, Rainie, and Jones). Thus, although an important leading group to watch, experienced users' patterns of use may not wholly predict use by later adopters.

Katz and Rice show two other levels at which the digital divide still operates, both of which are consistent with consideration of stages in the adoption of innovations and of adopter characteristics (Rogers, 1995). They describe how the digital divide operates at the level of *awareness* of the Internet. Awareness is the initial stage in individual adoption of an innovation, and thus a prerequisite for adoption. Those Americans more likely to be aware of the Internet are younger, male, higher income earners and white. Once awareness is achieved, Katz and Rice find no divide based on gender or race. Similarly, Nie and Erbring (2000), and Chen, Boase, and Wellman also find that once on the Internet how it is used looks similar across all users, in America and around the world.

The other level at which the digital divide still operates is *discontinuance*, dropping out of the Internet (Rogers, 1995). James Katz and associates present the only statistics we know of about dropouts (Katz and Rice; Katz, Rice, and Aspden, 2001; Katz and Aspden, 1997). They find that 8–11 percent of Internet users drop out each year for reasons such as lost access, insufficient interest, cost, and/or time. These are usually younger, less affluent and less educated users, but not proportionally more women or non-white users. Early discontinuance of an innovation is a characteristic of late adopters, as are lower social connectivity, income, and education levels (Rogers, 1995). These sta-

tistics show that considering access as a one-time event fails to capture the churn in Internet access and use, and the behaviors of only partially committed Internet users (Pinkett, 2001).

Churn also brings us back to the issue of the digital divide. Low-income users discontinue most often, and this may be because they lose the infrastructure that supports their use of the Internet, e.g., by losing their job, or by being unable to keep a telephone. As Jorge Schement (1998) notes: "Telephone penetration deserves special attention because it constitutes the access point to many of the new services, such as email and the Internet, associated with the new technologies" (online). Regardless of US federal policy regimes, African-Americans and Latinos have lagged behind whites in telephone penetration, an effect that "holds up even when one examines households within the same income" (Schement, 1998, online).

### *What are they using the Internet for?*

It is clear that *email* and *searching for information* take high priority in Internet time (table I.1; Chen, Boase, and Wellman; Howard, Rainie, and Jones; Katz and Rice; National Statistics Omnibus, 2000; Nie and Erbring, 2000; Nie, Hillygus, and Erbring; Quan-Haase and Wellman; Statistics Canada, 2000; UCLA CCP, 2000). Well over 80 percent of users use the Internet for email, with an estimated 4 trillion email messages exchanged in the US in 1998, and 42 percent of Americans checking their email daily (UCLA CCP, 2000). Users rank email as the number one reason for being online (Katz and Aspden, 1997). The high use of email affirms Michael Strangelove's statement that "The Internet is not about technology, it is not about information, it is about communication – people talking to each other, people exchanging email . . . The Internet is a community of chronic communicators" (quoted in Putnam, 2000, p. 171).

The Internet's other main use is for seeking information, e.g., hobby, medical, sports, travel, news, or product information. Longtime users, new users, non-users and former users all rank this activity as number one or two as a reason for being online (Katz and Aspden, 1997). The UCLA report (UCLA CCP, 2000) found that two-thirds of users consider the Internet an important or extremely important source of information, with 80 percent using the Internet for web surfing and browsing, and with adults spending over a quarter of their time online looking for information.

Smaller, but still large, proportions of Internet users are engaging in e-commerce by shopping and buying products online: from 36 percent (SIQSS study, Nie and Erbring, 2000) to 51 percent (UCLA study) in the US, and 33 percent in Britain (National Statistics Omnibus, 2000). In Canada, 19 percent of households with access had bought goods or services on the Internet in 1999, up from 9 percent two years earlier (Statistics Canada, 2000). Lunn and Suman explore what predicts online shopping behavior. Among the important factors are experience with the Internet, and with remote shopping: already being accustomed to ordering through catalogs or by phone. They find that men spend three times as much as women do online, although they caution that this too may be confounded with experience since men in their study had nearly seven months more experience online than the women.

While some studies find little difference in what people do online once they have access (Nie and Erbring, 2000; Katz and Rice; Chen, Boase, and Wellman; Quan-Haase and Wellman), others find differences by gender, age, and race. The gender differences that are observed do not appear uniformly across studies. The Pew studies (Howard, Rainie, and Jones) find that men are more likely than women to be using the Internet to seek news, product, financial or hobby information, or to do work-related research. The UCLA studies concur that men spend more time on commerce activities such as purchasing, banking, and auctions, but also find that women spend slightly more time on work-related activities (UCLA CCP, 2000; see also Lunn and Suman). The Homenet studies suggest that women carry offline communication behaviors online. They are also more likely to use email for expressive rather than instrumental communication: to exchange small talk and engage in relationship-building communications (Boneva and Kraut).

Women also continue the offline characteristic of being the ones responsible for maintaining ties with kin (Boneva and Kraut; see also Haythornthwaite and Kazmer). Howard, Rainie, and Jones did not find major differences between men and women in use of email, but did find 49 percent of whites send and read email on a typical day compared to 27 percent of African-Americans in their sample. Nie and Erbring (2000) also note that use of anonymous chat rooms is an activity for the young, with usage substantially lower for those older than 25. Chen, Boase, and Wellman sum the situation up well: Although there is an overall similarity in the general nature of what different

---

demographic types do online – most email and web surf, there are important differences in the specifics of what they do.

*How much time do they spend online?*

All researchers agree that using the Internet takes time, 9.4 hours a week on average in one US estimate (including work; UCLA CCP, 2000). Work-age US users spend the most time online, with those from 19–55 averaging over 9 hours a week, peaking at 11 hours a week among those 25–35 years of age. Younger and older users spend less time online, with 12–15 year olds using the Internet the least at just under 6 hours a week, and those over 65 using it for just under 7 hours a week. In the UK, time online appears to be much lower, at 1 to 3 hours a week across all age groups (Anderson and Tracey).

The number of hours online per week increases sharply with number of years using the Internet: from 6 hours a week for those with less than 1 year of experience, to over 16 hours a week for those with over 4 years experience (UCLA CCP, 2000). Activities and reasons for being online also change with experience. Some users progress from being online “for fun” and playing games to being online for a specific reason, and using it to accomplish personal or professional work (Chen, Boase, and Wellman; Howard, Rainie, and Jones).

Adding Internet based activities to daily life requires a redistribution of limited personal resources of time and effort. Nie and Erbring (2000) find that significant changes in individuals’ lives appear when use exceeds 5 hours a week, and this includes approximately 36 percent of Internet users in their sample. To accommodate these hours, other activities are displaced. Time may be “stolen” from local face-to-face exchanges and given to distant friends, “stolen” from the phone and given to email, and “stolen” from now with promise of return later. This change is not without controversy. Spending time communicating via email with distant friends and relatives, takes time from local activity. The controversy is not whether we do take time, but whether taking this time has positive or negative consequences. Expending our social resources on maintaining ties with distant others, or with people we meet only online, may compromise local social relationships, which in turn may compromise individual well-being (Kraut, Patterson, et al., 1998).

The Internet can also affect family relationships as different members of the family change focus or develop expertise. For example, Kraut et al. (1998) found that teenagers in their sample of households used the Internet more than other household members. Their sample consisted of households in their first one to two years of Internet use in households that had not had Internet access before. For the same sample, Kiesler et al. (2000) found teens playing a major role in help seeking and help giving relating to the technical features of the Internet and acting as the technological gurus for the household.

Another possibility is that the Internet may help people make connections to others: gaining another source of companionship, emotional support, help with jobs, and so on, and may fill a void for those who currently operate in an alienating face-to-face environment. Yet another possibility is that the Internet does not embody any dramatic change in behavior, but instead exaggerates what we do already: for example, increasing circles of friends for the outgoing and successful among us, and decreasing social circles for the rest. Indeed, Kraut et al.'s more recent study (Kraut, Kiesler, Boneva, Cummings, Helgeson, and Crawford, 2002) suggests this. Their three-year follow-up of Homenet users found positive effects of using the Internet, but with better outcomes for extroverts than introverts

Sorting out the actual impact of Internet use on social interaction is the second major area addressed in the studies presented here. We turn to this issue next.

### **Concerns about Social Interaction**

We cannot expect to add 16+ hours of Internet time a week to our daily lives (as do users with over four years experience; UCLA CCP, 2000) without changing some patterns of our behavior. As Nie (2001) questions, and as many of the studies in this book examine, when Internet hours are added to already full schedules, what things get dropped? (See Anderson and Tracey; Copher, Kanfer, and Walker; Haythornthwaite and Kazmer; Nie, Hillygus, and Erbring; Robinson, Kestnbaum, Neustadt, and Alavarez; Salaff.)

One place Internet hours come from is time previously used to watch television: Internet users spend 28 percent less time watching television than non-users, approximately 4.6 hours a week (UCLA CCP, 2000; see also Kraut, Patterson et al., 1998, and Putnam, 2000 for

television watching). While UCLA CCP (2000) find that their users reported spending the same amount of time reading books and newspapers, and talking on the phone, Nie and Erbring (2000) find heavy Internet users cut back on use of all traditional media (television, newspapers, phone to friends and family), as well as shopping in stores and commuting in traffic. Looking in more detail, Anderson and Tracey report a long list of activities that are potentially displaced, but found impacts were marginal at best on watching television, gardening, reading newspapers, magazines and books, shopping, telephoning, going to the pub, doing nothing, writing letters, sleeping, playing computer games, and typing on a typewriter. Wagner, Pischner, and Haisken-DeNew find that teenagers' use of the Internet does not take away from the more socially acceptable activities of reading or playing sports. Instead, they find that "computer kids" are less likely to engage in the less socially accepted activities of just hanging around or doing nothing. Similarly, Robinson, Kestnbaum, Neustadt, and Alavarez find that Internet users show a more active lifestyle than non-users, including less sleep, and more social contact with friends and co-workers (although less time with their children).

A slightly different view can be found when looking at the Internet entering the home for a major undertaking, such as studying or working online. Haythornthwaite and Kazmer, and Salaff both discuss how people manage this type of undertaking. Haythornthwaite and Kazmer find that as time becomes constrained, online learners drop some activities first, while preserving others. First to go are relatively solitary activities such as television, reading for pleasure, needlework, and gardening; next are leisure activities with friends and work for volunteer groups; then work, sleep, and eating are compromised. Kept to the end are time with family (particularly children), and work for the educational program itself. Both Haythornthwaite and Kazmer, and Salaff find that managing the Internet at home requires defining boundaries – both temporal and spatial – so that users – and their work or learning activities – can be cordoned off from the activities and presence of others. Learners and workers at home actively construct a barrier to social interaction because it is not obvious to others that the individual is "at work."

Although all studies report decreased time watching television, Internet users usually are more media connected than non-users. They are ahead in all categories except the percent using the television (tied at 97 percent of both users and non-users). Books are used by 12 percent more Internet users than non-users; video games, 15 percent;

recorded music, 22 percent; newspapers, 6 percent (note also that 57 percent of Internet users report reading news online as a key activity so this figure may under-represent overall use of newspapers); radio, 9 percent; and phone, 3 percent (UCLA CCP, 2000; see also Chen, Boase, and Wellman; Quan-Haase and Wellman). This may be a reflection of the higher education and income of Internet users, and it may also again indicate characteristics of the earlier adopters. Their pre-existing inclination to use media of all types, combined with familiarity and ease with these media, may have made it easier and less complex for them to adopt computing and the Internet (see Rogers, 1995). It may also have exposed them to information about the Internet earlier than others, positively enhancing their awareness of the Internet and precipitating earlier adoption.

One concern regarding all this time spent online is that the possibly solitary activity engendered by the Internet may displace time formerly spent on local social relations and have an adverse effect on individual well-being (Kraut et al., 1998; Nie, 2001). At another level of analysis, there is concern for the well-being of geographically defined communities when individuals spend their time on individual activities, or on interactions with people outside the area (Hampton and Wellman; Wellman, 1999). This concern has been cast in terms of the *social capital* that accrues to different communities according to the contributions from people who belong to the community, and is now best known through Robert Putnam's (2000) work *Bowling Alone*. Communities with high social capital, demonstrated and built through vibrant, face-to-face interaction in voluntary associations, provide a higher quality of life for their members (Kavanaugh and Patterson; Quan-Haase and Wellman).

Thus, there are questions about whether the Internet has a positive or negative effect on individual well-being, relations with others, and social capital building within communities (Hampton and Wellman; Katz and Rice; Kavanaugh and Patterson; Quan-Haase and Wellman). At present, the statistics do not provide a clear position, and can be interpreted to support or refute the claim that the Internet is a solitary activity, harmful to social relations with others. To make sense of this, it is necessary to find out about many aspects of individuals' behavior in regard to the Internet, including answers to questions such as:

- *Does being on the Internet mean being alone?* Does time online actually interfere with time with others or does it replace time spent in otherwise solitary or low-interaction activities? Do user's percep-

- tions of the impact of their time on the Internet on interpersonal relations concur with that of their friends and family members?
- *What is the Internet's impact on friendships? Are local friendships traded for distant ones or are distant ones added? Are strong, face-to-face interpersonal ties traded for weak, computer-mediated ones (Hampton and Wellman; Kraut et al., 1998; Wellman et al., 1996)?*
  - *Do the dynamics of social interactions on the Internet add to or detract from individual well-being? Do they add to or detract from commitment to and participation in local community activities (Hampton and Wellman, 2000; Kavanaugh and Patterson; Putnam, 2000)? Do they increase, decrease or supplement social capital and commitment to community (Chen, Boase, and Wellman; Kraut et al., 1998; Quan-Haase and Wellman)?*
  - *Does the Internet perpetuate or exaggerate existing offline behavior, such as increasing connectedness only for those with initially larger networks and better resources (Nie, 2001), increasing communication only among natural communicators (Boneva and Kraut)?*
  - *Should Internet behavior be considered separately from other aspects of individuals' lives (all chapters)?*

Some brief and initial answers to these questions follow, largely drawn from the studies presented in this book.

### *Does using the Internet mean being alone?*

Being alone may mean sitting at a computer on your own and/or pursuing individual pursuits on the Internet. Yet, using the Internet generally means communicating with others, largely through email, so a good proportion of the time online is social. The UCLA study also suggests that Internet use may not always mean being alone at the computer: 47 percent of users report spending "at least some time each week using the Internet with other household members" (UCLA CCP, 2000, p. 29).

Being alone may also mean abandoning ties with those physically nearby. Individuals may feel this loss, as may the individuals with whom they no longer spend time. Most Internet users do not feel they are reducing time with others. Katz and Rice report that 88 percent of users consider the Internet to have had little impact on time with friends and family. Howard, Rainie, and Jones find that over half



the users say they now have more communication with family (59 percent), and with their primary friend (60 percent), as well as nearly a third now having communication with a family member they did not previously contact often (31 percent). Quan-Haase and Wellman find no negative effects of frequent Internet use on an overall sense of community. Moreover, this study, as well as the global study by Chen, Boase, and Wellman, finds that frequent users add a heightened sense of online community to their existing overall sense of community. In the UCLA study, most users (92 percent) connected to the Internet at home say they spend the same amount or more time together with household members.

Being alone can also mean not having others to turn to in times of need. Yet, the Internet is also used to enhance social relations, both near and far. A number of studies point to increased contact with distant friends and relatives (Boneva and Kraut; Hampton and Wellman; Haythornthwaite and Kazmer; Kavanaugh and Patterson; Kraut et al., 1998; Miyata). Several studies also show how the Internet buffers stress for those who move away from family or friends, e.g., college students (LaRose, Eastin, and Gregg, 2001), or those who have moved to new homes (Hampton and Wellman). Online support groups also provide much needed support. For example, Miyata finds social support from membership and participation in online support groups for mothers decreases depression and increases well-being for both active participants and lurkers, although more so for those who are active.

By contrast, other results point to a decrease in sociability. Nie and Erbring (2000) find that the more time people spend online, the greater the percentage of individuals reporting decreased time spent with family and friends: from 4 percent with 1 hour of Internet use per week to 15 percent with more than 10 hours use. Nie, Hillygus, and Erbring estimate that each minute spent on the Internet during the last 24 hours corresponds to a reduction in time with family members of one-third of a minute. Similarly, the more time people spend online, the greater the percentage of individuals reporting decreased time talking on the phone with friends and family: from 9 percent with 1 hour of use to 27 percent with over 10 hours use (Nie and Erbring, 2000). No statistics are available on whether this is a switch from phone to email or a loss of contact altogether.

Also, although the UCLA study participants felt they spent the same or more time with others, Internet users socialize less with household members than do non-users, by close to 4 hours a week

(UCLA CCP, 2000; see also Nie, 2001, for some further discussion). Perhaps Internet users in the UCLA study were already low socializers, and adding Internet use interfered less with their socializing than it might for others. Perhaps the impact is only felt when people use the Internet a lot, e.g., over the 5 hours-a-week level at which Nie and Erbring (2000) find that behavior changes markedly. Other results suggest this may be the case: like the studies by Nie and associates, Kraut, Patterson, et al. (1998) also found that greater use of the Internet was associated with a decline in family communication.

Being alone may also be a judgment made by those who are abandoned while the Internet user spends time online. How do others view Internet user's time with them? The UCLA study found that 75 percent say they do *not* feel ignored by other household members spending too much time online (18 percent *do* sometimes feel ignored; 6 percent often ignored). This appears to be less isolating than television for which 63 percent report *not* feeling ignored by others' television habits (28 percent *do* sometimes feel ignored; 9 percent often ignored). However, we should take with a grain of salt a positive statement about one potentially isolating medium when it is compared to another medium that is also potentially isolating. After all, nearly one-quarter of those asked *do* feel ignored by their Internet-using household members. And, if we compare the numbers given above to those here, we find a disparity between user's perceptions of time spent with others and other's perceptions of being ignored: 92 percent of the users say they are not ignoring others, whereas only 75 percent of others do not feel ignored. Research has yet to explore fully what these sorts of numbers mean in people's lives.

*What is the impact on contact with others,  
friendships, and civic engagement?*

Being alone may mean not communicating with anyone, or not having friends and strong interpersonal relationships (Kraut et al., 1998). It may mean living your life almost totally online, having the Internet depress your relations with others, or having the Internet add to, and even multiply your relations with others through opportunities for new contacts or by bolstering existing ties.

Users in the UCLA study reported moderately increased contact with family and friends (as do Howard, Rainie, and Jones's users), and with professional colleagues; a small positive impact on contact with

people who share their hobby or recreational activity; and negative impacts for contact with people who share their religion, or share their political beliefs (UCLA CCP, 2000).

Three chapters note that distance still matters, with more contact occurring with those close to home than far away (Hampton and Wellman; Quan-Haase and Wellman; Chen, Boase, and Wellman). These studies find that Internet contact neither increases nor decreases contact with people in person or on the telephone. It adds on to it, so that the more people use the Internet, the more overall contact they have with friends and relatives (see also Copher, Kanfer, and Walker's study of heavy versus light email users). Remarkably, this happens in developing countries, with their poor transportation infrastructures, as well as in developed countries (Chen, Boase, and Wellman). In North America, there are local benefits: Blacksburg Internet users report increased communication with members of formal social groups and with local friends (Kavanaugh and Patterson). Similarly, in Netville, those with high-speed Internet connections had much more informal contact with neighbors than did the non-wired; wired residents knew the names of 25 neighbors compared to 8 for the non-wired, and they made 50 percent more home visits (Hampton, 2001; Hampton and Wellman, 2002).

Being alone locally may be countered by new and enhanced social relations with others expressed via the Internet, and carried from the Internet to offline, face-to-face relationships. Many report high levels of contact with distant friends and relatives that seem attributable to the Internet (Boneva and Kraut; Chen, Boase, and Wellman; Hampton and Wellman; Haythornthwaite and Kazmer; Kavanaugh and Patterson; Kraut et al., 1998; Quan-Haase and Wellman). In the UCLA study, 26 percent of users say they have online friends they have not met in person; and 12 percent have met in person someone they first met online (UCLA CCP, 2000). In 1995, Katz and Rice found 12 percent of users had established friendships via the Internet, and 17 percent had met face-to-face at least once with someone they first met online; in 2000, 14 percent reported online friendships, and 10 percent had met someone offline. Yet such long-distance connectivity did not start with the Internet. Wellman's research group has been pointing out since 1979 that most strong ties with friends and relatives stretch beyond the neighborhood (Wellman, 1979, 1999; Wellman and Tindall, 1993; Wellman and Wortley, 1989, 1990).

It is also evident that connectivity seems to go to the connected: greater social benefit from the Internet accrues to those already well

situated socially. As Nie (2001) points out, connectivity already goes to those with higher levels of income and education, and the greater connectivity seen in comparisons of Internet users to non-users may result from the pre-existing high connectivity levels of such people. Other studies also suggest that adding a new medium to communication repertoires is more likely when the relationship is already strong (Haythornthwaite, 2000; Haythornthwaite and Wellman, 1998; Koku, Nazer, and Wellman, 2001; Koku and Wellman, 2002). Frequent contact via the Internet is also associated with frequent contact via other means (Chen, Boase, and Wellman; Katz and Aspden, 1997; Quan-Haase and Wellman; Robinson, Kestnbaum, Neustadt, and Alvarez). These studies show that the closer the work and/or friendship relationship, the more media people use to communicate. Thus, those who are highly socially connected, and likely within that set of connections to maintain higher numbers of stronger ties, are also more likely to be the ones adopting and using the Internet for communication and connectivity.

Existing connectivity levels may also have an impact on the success of more community-wide Internet initiatives. Quan-Haase and Wellman suggest that civic engagement via the Internet may be positively associated with higher levels of other forms of civic involvement. In a more focused study, Kavanaugh and Patterson find that high levels of community involvement are associated with more use of the Internet for interpersonal and group communication activities. In summarizing their results, they concur with an observation by Putnam that the success of their community network, the Blacksburg Electronic Village, may have been because it was established in an environment that already had high levels of connectivity, and that social capital may be a prerequisite rather than a consequence of effective computer-mediated communication (Kavanaugh and Patterson, citing Putnam, 2000).

Local connectivity – along with gender and Internet experience – affects who becomes more connected online. The chances of making a friend online increase substantially with increased belonging to a neighborhood, and with knowing a neighbor well enough to talk about a personal matter (Hampton and Wellman, 2002; Matei and Ball-Rokeach). Women, who traditionally maintain family ties, are more likely than men to maintain email connections with distant friends and relatives and to maintain larger networks of distant contacts (Boneva and Kraut). Experience also makes a difference. Those more familiar with Internet technologies are also more likely to make

social connections. Using the Internet to communicate with others increases with years of use of the Internet (Chen, Boase, and Wellman; Kavanaugh and Patterson; Quan-Haase and Wellman) and increased confidence with the technologies (Haythornthwaite and Kazmer). Connecting with others may even include giving technical help to get distant relatives online so that contact can happen via email (Haythornthwaite and Kazmer).

Key to concerns about people's solitary and social behaviors is the well-supported finding that social contact, and its attendant access to emotional and material support resources, engenders personal well-being (see Kavanaugh and Patterson; Hampton and Wellman; Miyata; Kraut, Patterson et al., 1998). Does use of the Internet decrease personal well-being? The Kraut, Patterson, et al. study (1998) sounded an alarm about this problem. They found a clear association between higher Internet use and increases in depression. These authors cautioned that this result must be interpreted in the light of the age of participants (teenagers being higher Internet users in their study), and with attention to the direction of causation (were more depressed individuals using the Internet more because they were depressed or did the greater use make them depressed). Their results clearly indicate that concern for individual well-being and Internet use has a real foundation. Whether causal or correlational, this needs to be investigated further.

Just such an investigation has been done by LaRose, Eastin, and Gregg (2001). Results from a sample of college students, a mobile population less likely to have local social support, showed that Internet use was positively associated with receiving email from known others, which was in turn associated with greater social support. This support then had a mitigating effect on general stress and on depression. They also found a significant difference in "Internet self-efficacy" (the belief in one's ability to use the Internet successfully) between new and experienced users (less than two years experience and over two years). Those with more self-efficacy experienced less Internet stress (for example, stress associated with technical aspects of Internet use), a contributing factor to depression in their study.

Hampton and Wellman report that another mobile population, new home owners, fared better in maintaining social contacts when connected to the Internet at home than when not: those who were connected reported almost no change in social contact compared to a year before their move, while the non-connected experience a drop in contact. Such social contact will generate social support, easing the transition to a new neighborhood. Both of these studies show how the

Internet may help reduce depression for specific kinds of population, and suggest again the need for exploring Internet use in conjunction with people's lifestage, and not separate from it.

Finally, the most recent study of Homenet users (Kraut et al., 2002), who are now more experienced than when first studied, shows lower depression with higher Internet use, and no significant association with loneliness. They suggest, along with many authors in this book, that the integration of Internet use with everyday life – and the concomitant development of synergies between online and offline life – may provide beneficial outcomes.

### **Bringing It All Together**

#### *Dovetailing with everyday life*

Much of the discussion of Internet use considers it as separate from people's lives, an add-on that interferes with "real-life" activity. How separate are Internet activities from other aspects of people's lives? Is it a stand-alone activity, or does it become no more separate than picking up the phone is separate from talking to family?

In considering the integration of the Internet into our daily lives, we need to remember that the Internet is a new social phenomenon, its current version in place now only since the 1990s. Even in this short period, Internet experience and time online changes behavior. We are watching an emerging phenomenon, not a mature one. At present, we see that types of use, time spent online, and connectivity to others all increase with the amount of time people have had access to and used Internet applications. We also find more synergies between different spheres of activity with increased years of experience. Kavanaugh and Patterson note an increase in "social capital building activities" with more years of access, including communication with close and distant friend, relatives, co-workers, and volunteer groups. Howard, Rainie, and Jones distinguish the more experienced "netizens" from others in the way they incorporate the Internet into both home and work life, and their comfort level in spending and managing their money online, and using email to enhance social relationships. Quan-Haase and Wellman show that the more time people spend online, the more they are involved with organizations and politics, offline as well as online, and find longer-term users have a higher sense of online community. And both Salaff, and Haythornthwaite and Kazmer describe how

synergy between individuals' work, home, and school worlds develops with experience in an online environment, with more experienced users seeking ways to integrate Internet applications such as email into their personal, work, and volunteer environments.

Access to the Internet also dovetails with daily life. For better or worse, work creeps into home hours as computers and the Internet reach the home (Kraut et al., 1998; Nie and Erbring, 2000; Salaff). Education also enters this overfilled home as adult students engage in Internet-based courses in the midst of domestic and work responsibilities (Haythornthwaite and Kazmer). These crossovers also precipitate greater access. For example, the UCLA study finds that women's access to the Internet (but not men's) is markedly higher when there are children in the household (70 percent versus 57 percent). Computing and the Internet also enter local communities through community network initiatives, as in Blacksburg, Virginia (Kavanaugh and Patterson) and Netville, the "wired suburb" near Toronto, Ontario (Hampton and Wellman). Thus, influences from outside the home – work, school, networking initiatives – precipitate access and use in the home. Yet, this then precipitates use from home to elsewhere, as *netizens* connect from their homes to the homes of others, and bring voluntary groups online.

### *The Internet and the rise of networked individualism*

This book focuses on the relationship between the Internet and both individual behavior and interpersonal relations. The research presented in this book also suggests that the Internet has accentuated a change towards a networked society that had already been underway. Even before the advent of the Internet, there has been a move from all-encompassing, socially controlling communities to individualized, fragmented personal communities. Most friends and relatives with whom we maintain socially close ties are not physically close. These ties are spread throughout metropolitan areas, and often on the other side of countries or seas. Mail, the telephone, cars, airplanes, and now email and the Internet sustain these ties. Most people do not live lives bound in one community. Instead, they maneuver through multiple, specialized partial communities, giving limited commitment to each. Their life is "glocalized" (Hampton and Wellman, 2002): combining long-distance ties with continuing involvements in households, neighborhoods, and worksites (Fischer, 1982; Wellman, 1999, 2001).

**Table I.4** Some signs of networked individualism

<i>Groups</i>	→	<i>Networks</i>
<i>Each in its place</i>	→	<i>Mobility of people and goods</i>
United family	→	Serial marriage, mixed custody
Shared community	→	Multiple, partial personal networks
Neighborhoods	→	Dispersed networks
Voluntary organizations	→	Informal leisure
Face-to-face	→	Computer-mediated communication
Public spaces	→	Private spaces
Focused work unit	→	Networked organizations
Job in a company	→	Career in a profession
Autarky	→	Outsourcing
Office, factory	→	Airplane, Internet, mobile phone
Ascription	→	Achievement
Hierarchies	→	Matrix management
Conglomerates	→	Virtual organizations/alliances
Cold war blocs	→	Fluid, transitory alliances
Collective security	→	Civil liberties

Some or all of these arrows may be reversed if security concerns dominate.

Source: See Wellman (2002) for an earlier version of this table

The Internet has continued this turn towards living in networks, rather than in groups. In such networked societies, boundaries are more permeable, interactions are with diverse others, linkages switch between multiple networks, and hierarchies are flatter and more recursive (Castells, 2000; Wellman, 1997, 1999). Hence, many people and organizations communicate with others in ways that ramify across group boundaries. Rather than relating to one group, they cycle through interactions with a variety of others, at work or in the community. Their work and community networks are diffuse and sparsely knit, with vague, overlapping, social and spatial boundaries. Their computer-mediated communication has become part of their everyday lives, rather than being a separate set of relationships. The security and social control of all-encompassing communities had given way to the opportunity and vulnerability of networked individualism. People now go through the day, week, and month in a variety of narrowly defined relationships with changing sets of network members (table I.4).

Hence, the Internet reflects, facilitates, and foretells a transition away from door-to-door group interactions in neighborhoods and



even place-to-place interactions where people traveled or communicated with each other's homes even as they passed quickly through the intervening space. Households, not individuals, were often the basis for supportive relationships. But, with mobile phones and wireless Internet access, physical location is becoming less important. Families eat together less often and are less prone to act as solidary units. Although the switch from door-to-door to place-to-place community has enabled communities of choice that were less constrained by distance, place-to-place community has preserved some sense of social context. The shift from place-to-place to person-to-person community reduces this contextual sense, with individualized interpersonal ties replacing place-based, inter-household ties (Rheingold, 2002; Wellman, 2001).

The personalization, portability, ubiquitous connectivity, and imminent wireless mobility of the Internet all facilitate networked individualism as the basis of community. It is the individual, and neither the household nor the group that is becoming the primary unit of connectivity: gleaning support, sociability, information, and a sense of belonging. Because connections are to people and not to places, the technology affords shifting of work and community ties from linking people-in-places to linking people at any place. Computer-supported communication is everywhere, but is situated nowhere in symbolic space. It is I-alone that is reachable wherever I am: at a house, hotel, office, highway, or shopping center. The person has become the portal.

The technological development of computer-communications networks and the societal flourishing of social networks are now affording the rise of networked individualism in a positive feedback loop. Just as the flexibility of less-bounded, spatially dispersed, social networks creates demand for collaborative communication and information sharing, the rapid development of computer-communications networks nourishes societal transitions from little boxes to social networks (Castells, 2000). Where high-speed place-to-place communication supports the dispersal and fragmentation of organizations and community, high-speed person-to-person communication supports the dispersal and role-fragmentation of workgroups and households. Each person is a switchboard, between ties and networks. People remain connected, but as individuals rather than being rooted in the home bases of work unit and household. Individuals switch rapidly between their social networks. Each person separately operates his networks to obtain information, collaboration, orders, support, sociability, and a sense of belonging.

## Next Steps for Thinking about the Internet in Everyday Life

It is time for further analyses on the Internet in everyday life. Future analyses need to examine in more detail the effects of the Internet, focus on the types of activities performed online, and explore how these fit into the complexity of everyday life (see also Neustadtl, Robinson, and Kestnbaum; Jones 1999). Explaining Internet behavior entails understanding that “the Internet” is not a separate entity, but instead a complement to ongoing activity. We cannot understand its seemingly contradictory trends without considering a more integrated view of people’s lives. We cannot analyze it without considering the specifics of peoples’ lives, including “lifestage and lifestyle” (Anderson and Tracey), needs in a mobile world (Putnam, 2000; Wellman, 2001; Rheingold, 2002), multiple world obligations (Haythornthwaite and Kazmer), strong and weak ties (Haythornthwaite, 2002; Kraut et al., 1998; Wellman, 2001), and user and non-user demographics (Nie, 2001; and others). We cannot understand the relations of two people – or a small group – online without considering the broader social networks in which they are connected, offline as well as online.

The studies presented here begin these tasks of broadening our focus from the Internet to the social worlds in which it is embedded. There is more to be done, but here we join others in beginning the large task of understanding the major social phenomenon that is the Internet.

### References

- Anderson, B. and Tracey, K. (this book). Digital living: the impact (or otherwise) of the Internet in everyday British life.
- Barlow, J. P. (1995). Is there a there in cyberspace? *Utne Reader*, 50–6.
- Birdsall, W. S. (2000). The digital divide in a liberal state: a Canadian perspective. *First Monday*. Available online at:  
[http://www.firstmonday.dk/issues/issue5\\_12/birdsall/](http://www.firstmonday.dk/issues/issue5_12/birdsall/)
- Boneva, B. and Kraut, R. (this book). Email, gender, and personal relationships.
- Castells, M. (2000). *The rise of the network society* (2nd edn). Malden, MA: Blackwell.
- Chen, W., Boase, J., and Wellman, B. (this book). The global villagers: comparing Internet users and uses around the world.

- Copher, J., Kanfer, A., and Walker, M. B. (this book). Everyday communication patterns of heavy and light email users.
- Davidson, T., Sooryamoorthy, R., and Shrum, W. (this book). Kerala connections: will the Internet affect science in developing areas?
- Dibbell, J. (1993; 1996). Taboo, consensus, and the challenge of democracy in an electronic forum. In R. Kling (ed.), *Computerization and controversy* (pp. 553–68). San Diego, CA: Academic Press. (Originally appeared as “A rape in cyberspace: or, how an evil clown, a Haitian trickster spirit, two wizards, and a cast of dozens turned a database into a society.” *The Village Voice*, December 21, 1993, pp. 36–42.)
- DiMaggio, P., Hargittai, E., Neuman, W. R., and Robinson, J. P. (2001). Social implications of the Internet: the Internet’s effect on society. *Annual Review of Sociology*, 27, 307–36.
- Fernández-Maldonado, A. M. (2001, April). *Patterns of social diffusion and use of new information and communication technologies in Lima*. Paper presented at the International Research Seminar on the Social Sustainability of Technological Networks, New York, NY. Available online at: <http://www.bk.tudelft.nl/users/fernande/internet/NewYork.pdf>
- Fischer, C. (1982). *To dwell among friends*. Berkeley: University of California Press.
- Gibson, W. (1984). *Neuromancer*. New York: Ace Science Fiction.
- Hampton, K. N. (2001). Broadband neighborhoods connected communities. In K. Inkpen and J. Vanderdonck (eds), *CHI 2001 Extended Abstracts*. ACM Press.
- Hampton, K. N. and Wellman, B. (2000). Examining community in the digital neighbourhood: Early results from Canada’s wired suburb. In T. Ishida and K. Isbister (eds), *Digital cities: technologies, experiences, and future perspectives* (pp. 475–92). Berlin: Springer-Verlag.
- Hampton, K. N. and Wellman, B. (2002). Neighboring in Netville: how the Internet supports glocalized community, social support and social capital in a wired suburb. *City and Community*, 1(4) (forthcoming)
- Hampton, K. and Wellman, B. (this book). The not so global village of Netville.
- Hargittai, E. and Centeno, M. A. (eds) (2001). Mapping globalization. *American Behavioral Scientist*, 44(10), whole issue.
- Hauben, M. (1996). *The net and the netizens: the impact the net has on people’s lives*. New York: Columbia University.
- Haythornthwaite, C. (2000). Online personal networks: size, composition and media use among distance learners. *New Media and Society*, 2(2), 195–226.
- Haythornthwaite, C. (2001). Exploring multiplexity: social network structures in a computer-supported distance learning class. *The Information Society*, 17(3), 211–26.
- Haythornthwaite, C. (2002). Strong, weak and latent ties and the impact of new media. *The Information Society* (forthcoming).

- Haythornthwaite, C. and Wellman, B. (1998). Work, friendship and media use for information exchange in a networked organization. *Journal of the American Society for Information Science*, 46(12), 1101–14.
- Haythornthwaite, C. and Kazmer, M. M. (this book). Bringing the Internet home: adult distance learners and their Internet, home and work worlds.
- Haythornthwaite, C., Wellman, B., and Garton, L. (1998). Work and community via computer-mediated communication. In J. Gackenbach (ed.), *Psychology and the Internet* (pp. 199–226). San Diego, CA: Academic Press.
- Horrigan, J. and Rainie, L. (2002). *Getting serious online*. Washington: Pew Internet Project. March 3. <http://www.pewinternet.org/reports/index.asp>
- Howard, P. E. N., Rainie, L., and Jones, S. (this book). Days and nights on the Internet.
- ITU (International Telecommunication Union) (2001). ITU Internet Reports: IP Telephony. Sept 18. <http://www.itu.int/ITU-D/ict/publications/inet/2000/flyer/flyer.html>
- Jones, S. G. (ed.) (1998). *CyberSociety 2.0: revisiting computer-mediated communication and community*. Thousand Oaks, CA: Sage.
- Jones, S. G. (ed.) (1999). *Doing Internet research*. Thousand Oaks, CA: Sage.
- Jones, S. G. (ed.) (1995). *CyberSociety: computer-mediated communication and community*. Thousand Oaks, CA: Sage.
- Katz, J. E., Rice, R. E., and Aspden, P. (2001). The Internet, 1995–2000: access, civic involvement, and social interaction. *American Behavioral Scientist*, 45(3), 405–19.
- Katz, J. E. and Aspden, P. (1997). A nation of strangers? *Communications of the ACM*, 40(12), 81–6.
- Katz, J. E. and Rice, R. E. (this book). Syntopia: access, civic involvement and social interaction on the net.
- Kavanaugh, A. L. and Patterson, S. J. (this book). The impact of community computer networks on social capital and community involvement in Blacksburg.
- Kiesler, S. (ed.) (1997). *Culture of the Internet*. Mahwah, NJ: Lawrence Erlbaum.
- Kiesler, S., Lundmark, V., Zdaniuk, B., and Kraut, R. (2000). Troubles with the Internet: the dynamics of help at home. *Human Computer Interaction*, 15(4), 223–352.
- Koku, E. and Wellman, B. (2002). Scholarly networks as learning communities: the case of Technet. In S. Barab, R. Kling, and J. Gray (eds), *Building online communities in the service of learning*. Cambridge: Cambridge University Press (forthcoming).
- Koku, E., Nazer, N., and Wellman, B. (2001). Netting scholars: online and offline. *American Behavioral Scientist*, 44(10), 1752–74.
- Kraut, R., Kiesler, S., Boneva, B., Cummings, J., Helgeson, V., and Crawford, A. (2002). Internet paradox revisited. *Journal of Social Issues*, 58(1), 49–74.
- Kraut, R., Kiesler, S., Mukhopadhyay, T., Scherlis, W., and Patterson, M. (1998). Social impact of the Internet: what does it mean? *Communications of the ACM*, 41(12), 21–2.

- Kraut, R., Patterson, M., Lundmark, V., Kiesler, S., Mukhopadhyay, T., and Scherlis, W. (1998). Internet paradox: a social technology that reduces social involvement and psychological well-being? *American Psychologist*, 53(9), 1017–31.
- LaRose, R., Eastin, M. S., and Gregg, J. (2001). Reformulating the Internet paradox: social cognitive explanations of Internet use and depression. *Journal of Online Behavior*, 1(2). Available online at: <http://www.behavior.net/JOB/v1n2/paradox.html>
- Lievrouw, L., Bucy, E., Finn, A. T., Frindte, W., Gershon, R., Haythornthwaite, C., Kohler, T., Metz, J. M., and Sundar, S. S. (2001). Current new media research: an overview of communication and technology. *Communication Yearbook*, 24, 271–95.
- Lunn, R. J. and Suman, M. W. (this book). Experience and trust in online shopping.
- Macaluso, N. (2001). Nearly 60% of homes are online. *E-Commerce Times*, Aug. 13.
- Matei, S. and Ball-Rokeach, S. J. (this book). Belonging in geographic, ethnic and Internet spaces.
- McLuhan, M. (1962). *The Gutenberg galaxy: the making of typographic man*. Toronto: University of Toronto Press.
- Mehra, B., Merkel, C., and Bishop, A. P. (2002). *The Internet for empowerment of minority and marginalized users*. Working Paper, Graduate School of Library and Information Science, University of Illinois, Champaign.
- Miyata, K. (this book). Social support for Japanese mothers online and offline. National Statistics Omnibus (2000). *Internet access*. Available online at: [www.statistics.gov.uk](http://www.statistics.gov.uk)
- Neustadt, A., Robinson, J. P., and Kestnbaum, M. (this book). Doing social science research online.
- Nie, N. H. (2001). Sociability, interpersonal relations, and the Internet: reconciling conflicting findings. *American Behavioral Scientist*, 45(3), 420–35.
- Nie, N. H. and Erbring, L. (February 17, 2000). *Internet and society: a preliminary report*. Stanford Institute for the Quantitative Study of Society (SIQSS), Stanford University, and InterSurvey. Available online at <http://www.stanford.edu/group/siqss/>
- Nie, N. H., Hillygus, D. S., and Erbring, L. (this book). Internet use interpersonal relations and sociability: a time diary study.
- Nielsen NetRatings (February, 2002). *Global Internet index average usage*. Report. Available online at: [http://www.nielsennetratings.com/hot\\_off\\_the\\_net.jsp](http://www.nielsennetratings.com/hot_off_the_net.jsp)
- NTIA (National Telecommunications and Information Administration) (2000). *Falling through the net: toward digital inclusion*. US Commerce Department. Available online at: <http://www.ntia.doc.gov/ntiahome/digitaldivide/>
- NTIA (2002). *A nation online*. Washington: National Telecommunications and Information Agency. Available online at <http://www.ntia.doc.gov/ntiahome/dn/index.html>

- Nua.com (2001a). *US no longer dominates the net*. Available online at: [http://www.nua.ie/surveys/index.cgi?f=VS&art\\_id=905356771&rel=true](http://www.nua.ie/surveys/index.cgi?f=VS&art_id=905356771&rel=true)
- Nua.com (2001b). *Women outnumber men online in US*. Available online at: [http://www.nua.ie/surveys/index.cgi?f=VS&art\\_id=905356873&rel=true](http://www.nua.ie/surveys/index.cgi?f=VS&art_id=905356873&rel=true)
- Nua.com (2002). *How many online?* Available online at: [http://www.nua.ie/surveys/how\\_many\\_online/world.html](http://www.nua.ie/surveys/how_many_online/world.html)
- Pastore, M. (2002). U.S. e-commerce spikes in Q4 2001. *CyberAtlas*. Feb. 10. Available online at: [http://cyberatlas.internet.com/markets/retailing/article/0,,6061\\_977751,00.html](http://cyberatlas.internet.com/markets/retailing/article/0,,6061_977751,00.html)
- Pinkett, R. D. (2001). *The camfield estates-MIT creating community connections project: strategies for active participation in a low-to-moderate-income community*. Digital Cities Conference, Kyoto, October.
- Putnam, R. D. (2000). *Bowling alone: the collapse and revival of American community*. NY: Simon and Schuster.
- Quan-Haase, A. and Wellman, B. (this book). *Capitalizing on the net: social contact, civic engagement, and sense of community*.
- Reddick, A., Boucher, C., and Groseillers, M. (2000). *The dual digital divide: the Information highway in Canada*. Ottawa: Public Interest Advocacy Centre.
- Rheingold, H. (1993). *The virtual community: homesteading on the electronic frontier*. Reading, MA: Addison-Wesley.
- Rheingold, H. (2002). *Smart mobs*. Reading, MA: Perseus Books.
- Robinson, J. P., Kestnbaum, M., Neustadt, A., and Alvarez, A. S. (this book). *The Internet and other uses of time*.
- Rogers, E. M. (1995). *Diffusion of innovations*. 4th edn. NY: The Free Press.
- Salaff, J. W. (this book). *Where home is the office: the new form of flexible work*.
- Sawhney, H. (ed.) (2000). Universal service. *The Information Society*, 16(2), whole issue.
- Scabner, D. (2001). Downturn or not: Americans spend more hours on the job than anyone. ABCNews.com. May 7. [http://abcnews.go.com/sections/us/DailyNews/work\\_howmuch\\_dayone.html](http://abcnews.go.com/sections/us/DailyNews/work_howmuch_dayone.html)
- Schement, J. R. (1998). *Thorough Americans: minorities and the new media*. Available online at: <http://www.benton.org/Policy/Schement/Minorities/>
- Schuler, D. (1997). *Community networks: building a new participatory medium*. In P. Agre and D. Schuler (eds), *Reinventing technology, rediscovering community* (pp. 191–218). Greenwich, CT: Ablex.
- Smith, M. A. (1999). *Invisible crowds in cyberspace: mapping the social structure of the Usenet*. In M. A. Smith and P. Kollock (eds), *Communities in cyberspace* (pp. 195–219). London: Routledge.
- Smith, M. A. and Kollock, P. (eds) (1999). *Communities in cyberspace*. London: Routledge.
- Southwick, S. (1996). *Liszt: searchable directory of email discussion groups* <http://www.liszt.com>. BlueMarble Information Services.

- Statistics Canada (2000). Plugging in: household Internet use. *The Daily*. Monday, December 4, 2000. Available online at: <http://www.statcan.ca/Daily/English/001204/d001204a.htm>
- Sterling, B. (1996). Greetings from Burning Man! *Wired*, 4(11). Available online at: [http://www.wired.com/wired/archive/4.11/burningman\\_pr.html](http://www.wired.com/wired/archive/4.11/burningman_pr.html)
- Strover, S. (forthcoming). The digital divide: exploring equity and politics. *The Information Society*, whole issue.
- Turkle, S. (1984). *The second self: computers and the human spirit*. New York: Simon & Schuster.
- UCLA Center for Communication Policy (2000). *The UCLA Internet report: "Surveying the digital future."* Available online at: [www.ccp.ucla.edu](http://www.ccp.ucla.edu)
- Valente, T. (1995). *Network models of the diffusion of innovations*. Cresskill, NJ: Hampton Press.
- Van Gelder, L. (1985; 1996). The strange case of the electronic lover. In R. Kling (1996), (ed.), *Computerization and Controversy*, 2nd edn (pp. 533–46). San Diego, CA: Academic Press. (Originally appeared in *Ms. Magazine*, 14(4), October 1985, pp. 94, 99, 101–4, 123, 124.)
- Wagner, G. G., Pischner, R., and Haisken-DeNew, J. P. (this book). The changing digital divide in Germany.
- Webb, S. (2001). Avatar culture: narrative, power and identity in virtual world environments. *Information, Communication & Society*, 4(4): 560–94.
- Wellman, B. (1979). The community question. *American Journal of Sociology*, 84, 1201–31.
- Wellman, B. (1997). An electronic group is virtually a social network. In S. Kiesler (ed.), *Cultures of the Internet* (pp.179–205). Mahwah, NJ: Lawrence Erlbaum.
- Wellman, B. (1999). The network community. In B. Wellman (ed.), *Networks in the global village* (pp. 1–48). Boulder, CO: Westview.
- Wellman, B. (2001). Physical place and cyber place: the rise of personalized networking. *International Journal of Urban and Regional Research*, 25(2), 227–52.
- Wellman, B. (2002). Little boxes, glocalization, and networked individualism. In M. Tanabe, P. van den Besselaar, and T. Ishida (eds), *Digital Cities II: Computational and Sociological Approaches*. Berlin: Springer-Verlag.
- Wellman, B. and Gulia, M. (1999). Net surfers don't ride alone: virtual communities as communities. In M. A. Smith and P. Kollock (eds), *Communities in cyberspace* (pp. 167–94). London: Routledge.
- Wellman, B. and Tindall, D. (1993). Reach out and touch some bodies: how telephone networks connect social networks. *Progress in Communication Science*, 12, 63–94.
- Wellman, B. and Wortley, S. (1989). Brothers' keepers: situating kinship relations in broader networks of social support. *Sociological Perspectives*, 32, 273–306.

- 
- Wellman, B. and Wortley, S. (1990). Different strokes from different folks: community ties and social support. *American Journal of Sociology*, 96, 558–88.
- Wellman, B., Salaff, J., Dimitrova, D., Garton, L., Gulia, M., and Haythornthwaite, C. (1996). Computer networks as social networks: collaborative work, telework, and virtual community. *Annual Review of Sociology*, 22, 213–38.
- Wellman, B., Fong, E., Kew, M., and Wilkes, R. (2002). Fathoming the digital divide. *Studies in Internet Communication: Theory and Practice*, 19 (forthcoming).