our relationship to the computer culture and psychoanalytic culture as a proudly held joint citizenship.

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## Living Networked On and Offline

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We are living in a paradigm shift, not only in the way we perceive society, but even more in the way in which people and institutions are connected. It is the shift from living in "little boxes"[1] to living in networked societies.

Members of little-box societies deal only with fellow members of the few groups to which they belong: at home, in the neighborhood, at work, or in voluntary organizations. They belong to a discrete work group in a single organization; they live in a household in a neighborhood; they belong to a kinship group (one each for themselves and their spouse) and to discrete voluntary organizations: churches, bowling leagues, professional associations, school associations, and the like. All of these appear to be bodies with precise boundaries for inclusion (and therefore exclusion). Each has an internal organization that is often hierarchically structured: supervisors and employees, parents and children, pastors and churchgoers, the union executive and its members. In such a society, each interaction remains in its place: one group at a time.

Although people often view the world in terms of groups (Freeman 1992), they function in networks. In networked societies boundaries are more permeable, interactions occur with diverse others, linkages switch between multiple networks, and hierarchies (when they exist) are flatter and more recursive. The change from groups to networks can be seen at many levels. Trading and political blocs have lost their monolithic character in the world system. Organizations form complex networks of alliance and exchange rather than cartels, and workers (especially professionals, technical workers, and managers) report to multiple peers and superiors. Management by network is replacing management by (two-way) matrix as well as management by hierarchical trees (Berkowitz 1982; Wellman 1988; Castells 1996).

We focus here on the matters that we know best: the development of networked communities, both online and offline. Even before the advent of computer-mediated communication, it became clear that when you define communities as sets of informal ties of sociability, support, and identity, they rarely are neighborhood solidarities or even densely knit groups of kin and friends (Wellman 1999a). To look for community only in localities and groups has always been the wrong game—focusing on territory rather than on social relationships and institutions—and it is becoming even more wrong with the growth of relationships in cyberspace.

Communities are clearly networks, and not neatly organized into little neighborhood boxes. People usually have more friends outside their neighborhood than within it: Indeed, many people have more ties outside their metropolitan

[1] In the words of Malvina Reynolds's great song (1963).

area than within it. Their communities consist of far-flung kinship, workplace, interest group, and neighborhood ties concatenating to form a network that provides aid, support, social control, and links to other milieus. The network furnishes opportunity, maneuverability, and uncertainty. There is opportunity to find resources in various social circles. Maneuverability allows one to avoid the penurious and onerous nature of being a single network member and to pursue fortune and happiness elsewhere. And uncertainty stems from the limited scope, low density, and porous boundaries of any one network, which make it harder to identify with and find succor from a single solidary group (Wellman 1999b).

With the rise of cyberspace, the debate has focused on the implications of maintaining and forming interpersonal relationships online. Computer scientists and Internet entrepreneurs take for granted what is still problematic among community sociologists: that communities are based on social exchanges rather than on spatial proximity. It has largely been a Manichean, either/or, debate focusing on the turn to computer networks as either destroying community or creating new forms of community. However, the ascholarly parochialism of much discourse about the impact of cyberspace means that contemporary commentators are unaware that they are recapitulating more than a century of sociological debate about whether community has become lost, saved, or liberated since the Industrial Revolution (Wellman and Leighton 1979).

Many observers point to interactions online as utopian examples of strong supportive relations existing without regard to race, gender, or geography (see the articles in Smith and Kollock 1998). For example, John Perry Barlow, cofounder of the Electronic Frontier Foundation, professes the radical and positive social transformation that the Net will bring about:

> 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 want to be able to completely interact with the consciousness that's trying to communicate with mine. Rapidly. . . . We are now creating a space in which the people of the planet can have that kind of communication relationship. (Barlow et al. 1995: 36, 40)

At the same time dystopians argue the implications of online relations for our traditional "real life" communities. Thus Texas commentator Jim Hightower warns:

> While all this razzle-dazzle connects us electronically, it disconnects us from each other, having us "interfacing" more with computers and TV screens than looking in the face of our fellow human beings. (Fox 1995: 12)

## Computer Networks are Social Networks

The Internet both reflects the trend toward a networked world and enhances the turn toward networks and away from groups. The Internet allows people to step out of the box for both connections and information. When computer networks connect people and organizations, they are the infrastructure of social networks. Although computer scientists have been quicker than sociologists to study "virtual communities" in cyberspace (Kollock and Smith 1998; Bruckman et al. 1999), their disciplinary orientation and practical interest in developing computer applications has led to a neglect of traditional sociological issues, such as

- How do power and status affect computer-mediated relationships?
- How do relations online mesh with those offline?
- What are the implications of computer networks for social organization?

Yet seeing technology as affecting society has had a bad name even among sociologists, despite Ogburn's (1922, 1950; Ogburn and Nimkoff 1955) pioneering efforts. To be sure, our research group is finding what others have found before: People and organizations turn technological innovations to their own ends (Garton, Haythornthwaite, and Wellman 1998; Nazer, Koku, and Wellman 1999). Indeed, we spend much time telling computer scientists this, as they dream that their new application will change the world as well as earn millions of dollars for them. But if there is no technological determination, there are technological implications. For example, although technological developments are exciting to contemplate at the initial moment, they are largely boring in their short-term social effects. It is when a technological development has become so pervasive as to

be taken for granted, that its social effects may be exciting. Consider how telephone networks have fostered the proliferation of tightly coupled global organizations and the maintenance of strong supportive ties with dispersed kin and friends (Fischer 1992; Wellman and Tindall 1993). Like telephones, computer networks enhance connectivity, and help people form and maintain ties over long and short distances. It is not that people were so local before: Evidence from preindustrial and Third World societies show much long-distance connectivity (Wellman and Wetherell 1996). But more messages now go over computer networks than over telephone networks, with the two networks rapidly converging (*Economist* 1999). In many situations, computer networks now provide cheaper, easier, and faster access to people in far-flung locations.

Hence, the technical characteristics of computer networks have important implications for social relationships:

1. Computer-mediated communication (CMC) is usually asynchronous, allowing people in different time zones or on different schedules to communicate. For example, although the computer scientists our group has studied work in the same office, their different work schedules lead them to use e-mail (Haythornthwaite and Wellman 1998).
2. The rapidity of CMC fosters a high velocity of exchanges (Walther, Anderson, and Park 1994). For example, news about the "Melissa virus" circled the globe in four spring 1999 days. Within two weeks it was stale news meriting hardly any discussion (Wellman and Fisher 1999).
3. CMC supports emotional, nuanced, and complex interactions, belying early fears that it would be useful only for simple, instrumental exchanges (Donath 1998; O'Brien 1998).
4. CMC has taken on its own norms, procedures, and ethos, with CMC participants showing greater creativity and emotional swings than those talking face to face (Sproull and Kiesler 1991).
5. The absence of direct feedback in most CMC encourages more extreme forms of communication. People input messages to screens that they would rarely say to another person palpably present in person or on the telephone (Lea, O'Shea, Fung, and Spears 1992).
6. The ability of communications to be forwarded supports transitivity, as when messages get forwarded to friends of friends. The inclusion of headers in forwarded messages allows indirect ties to become direct relationships. This aids the exchange of information that cuts across group boundaries. Such crosscutting ties link and integrate social groups, instead of such groups being isolated in tightly bounded little boxes.
7. E-mail, the only widely available form of CMC, supports easy accessibility. This has led to a leveling of perceived hierarchies, with all feeling they have access to all. E-mail is not unique in this. Telephone networks also support easy accessibility, so much so that busy and reclusive people have constructed social (secretaries) and technical (voicemail) barriers to access. CMC will probably engender the same reaction, once techno-euphoria fades, with agents both providing background detail about callers and keeping unwanted callers at a distance. To protect privacy, people are already using multiple e-mail addresses and filters to keep out unwanted messages.
8. The ease of sending messages to large numbers of recipients allows participants to remain in contact with multiple social milieus. They become limited-liability members of several partial communities rather than fully committed members of one all-embracing community (Greer 1962; Wellman and Leighton 1979).
9. CMC both fosters the proliferation of weak ties and glues spatially distant stronger ties in place until the next face-to-face meetings. It is especially useful for maintaining contact with "weak ties": persons and groups with whom one does not have strong relationships of work, kinship, sociability,

support, or information exchange. Because weak ties are more socially heterogeneous than strong ties, they connect people to diverse social milieus and provide a wider range of information (Granovetter 1982).

10. CMC's accessibility, velocity, and multiple-message characteristics indirectly can connect the entire world in five steps or less (White 1970). Yet, unlike computer networks in which all nodes are ultimately connected, there is significant decoupling in social networks. Hence, information diffuses rapidly through computer-supported social networks, but neither universally nor uniformly (Valente 1995; Wellman 1988). The unconnected are the digitally deprived.
11. CMC sustains both specialized communities of interest and broadly supportive communities of intimacy. It supports relationships based on shared interests as well as relationships based on shared location, gender, ethnicity, or socioeconomic status.
12. CMC sustains communities that operate almost entirely online as well as those that intertwine computer-mediated and face-to-face communication (Rheingold 1993; Smith and Kollock 1998; Wellman and Gulia 1999).

The dystopians who fear that computer-mediated ties are inauthentic or less meaningful make two misguided assumptions: They assume that ties exist only online rather than being a mixture of online and in-person encounters. And they assume that the Internet is pulling people away from deeply meaningful household and neighborhood conversations, when it is more likely pulling people away from sitting by themselves in front of the television watching *Seinfeld* reruns. (Not that there's anything wrong with that.) The evidence is just starting to come in, with one pioneering study reporting that when "newbies" (those who are just learning how to use computers) use the Internet, some become slightly more depressed and slightly reduce interactions with family and close friends (Kraut et al. 1998). Yet the nature of this sample—studying only time-stressed newbies—may not generalize to a population in which all are habitually online.

Although utopians celebrate the prospects of life in multiple global networks,[2] they have not recognized that computer networks can enhance local relations in the home, workplace, and neighborhood. Paradoxically, computer networks encourage the formation and strengthening of local relationships. Our limited inquiries suggest that many e-mail messages are spatially local: asking spouses to bring milk home, work colleagues arranging a meeting, and neighbors organizing around local issues (Hampton and Wellman 2000). Two small studies by our group show much localization: More than half (57%) of all the e-mail messages received by computer-intensive students in Wellman's Berkeley graduate course came from within Berkeley with another 15 percent from within the Bay area (Wellman 1999c). Norwegians studying for a year at Berkeley received mostly long-distance messages, but almost all were from Norway (Johnstad 1999). Thus even when the Internet functions globally, it functions lumpily: Even messages dispersed around the world are disproportionately exchanged with a few geographical areas, certain types of people, or people in the same social networks (including "friends of friends").

Moreover, computers rarely are mobile machines now. Most are wired into the home and the workplace. This physically roots computer users to sit in front of their computers in their households, neighborhoods, and workplaces.[3] We are now investigating whether the rooted nature of net surfing actually encourages people to spend more time in their homes, reorganize their lives to be more involved with household members, and become more invested in their neighborhoods. It is the possibility of a "glocalization" of community that encourages the reappearance of the civic society, argued to be in decline throughout the western world. We call this process *glocalization:* the combination of global connectivity and local activity.

## A Wired World: The Case of "Netville"

For the past two years we have been studying community in "Netville," a newly built "wired

[2] These would not be "global villages" (McLuhan and Powers 1989) because each type of network is too limited in scope, sparsely knit, loosely bounded, and easy to leave.

[3] This may change with the advent of widespread wireless computing, but that is for the (not-too-distant) future.

suburb" near Toronto that was equipped with advanced Internet technologies as part of its design (Hampton and Wellman 1999). We have collected information about ties within the community and ties to friends, relatives, and workmates living elsewhere. Early observations suggest that the Internet both provides a ramp onto the global information highway and strengthens local links within neighborhoods and households. After the initial learning curve for "newbies," Netville family members helped each other use computers, shared online discoveries, and replaced time spent watching television with net surfing. For example, one family has a Saturday evening ritual of gathering around the computer with the family and a bowl of popcorn. Parents have rarely complained that the time their children or spouse spend online takes away from family activities. By contrast, many in one-computer households—especially women—have worried that the time they have available to use the Internet clashes with the time that other household members are online.

By contrast to dystopian fears that face-to-face interaction would suffer at the hand of this new technology, residents used e-mail as an "introduction service" in its own right and to set up face-to-face get-togethers between a few people or big parties for the development as a whole.[4] Almost all community members encouraged neighborly interaction and commitment, intertwining online and offline relationships. Residents quickly built up formal and informal discussion lists that connected residents and covered topics as diverse as home repair, protests against the developer about home construction, and political protest against the telecommunications company seeking to withdraw their service. A local e-mail list facilitated neighborly interaction: Families organized neighborhood barbecues, teenagers offered their babysitting services, young children searched out new friends, and parents directed other families to local shops and services that they had grown to trust. By contrast to neighboring that occurs largely among households that adjoin yards or live across the street (Keller 1968; Michelson 1976), Netville residents have used the Internet to build neighboring relationships with the Ginsbergs down the street and the Wongs around the corner. E-mail allows neighbors to keep informed and in touch on their own time, without having to overcome the social and physical barriers necessary to knock on a door or do more than wave a hello from across the street. The availability of this extra communication medium may be particularly important for couples without children, or a dog to walk through the neighborhood, those who lacked any ties to the community and needed an extra channel to initiate or respond to neighborly sociability. The result has been a local network of densely knit, specialized acquaintanceships with a relatively high frequency of interaction, both face-to-face and online.

Yet online virtual communities do more than replicate face-to-face communities in cyberspace. Besides conveying one-to-one e-mail messages, the Internet is also a "public address system" where people can send messages to everyone on their community e-mail list, and a "broadcasting system" where messages within a community can be forwarded to outsiders. Similar phenomena occur in the workplace through the use of "computer-supported cooperative work."[5] In the workplace the use of online workgroups, discussion groups, intranets, and e-mail lists can meld spatially dispersed co-workers into more densely knit, socially cohesive organizations (Sproull and Kiesler 1991; Wellman 1997; Churchill and Bly 1999).

How does living in computer-supported social networks differ from living in traditional groups?

1. It enhances the ability to connect with a large number of social milieus, while decreasing involvement in any one milieu.
2. It decreases the control that any one social milieu can have, while decreasing the commitment of any one milieu to a person's well-being.
3. It requires people to actively maintain their sparsely knit ties and fragmented networks. By contrast, in groups it is eas-

[4] However, an early suggestion to post e-mail addresses on mailboxes never caught on.

[5] "Computer-supported cooperative work" (or the abbreviation "CSCW") is a commonly used term in this field, which is principally populated by computer scientists, information scientists, communication scientists, management scientists, psychologists, and anthropologists—and probably least so by sociologists. There are at least three conferences annually, with heavy corporate, governmental, and scholarly representation.

ier for people to sit back and let group dynamics and densely knit structures do the work. That is why friendship networks are less likely than kinship networks to persist in times of overload.

4. It may shift the proportion of interactions away from those based on "ascriptive" characteristics people are born with—such as age, gender, race, and ethnicity—and toward those based on "achieved" characteristics adopted throughout the life course—such as lifestyles, shared norms, and voluntary interests.
5. It can foster "cross-cutting" ties that link and integrate social groups, instead of such groups' being isolated in tightly bounded little boxes.
6. It can increase choices while reducing the palpable group memberships that provide a sense of belonging.
7. In short, it has reduced the identity and pressures of belonging to groups while increasing opportunity, contingency, globalization, and uncertainty through participation in social networks.

Thus the ability of computer networks to connect people beyond the immediate neighborhood and organizational group can provide a basis for the "mechanical solidarity" of cross-cutting ties that Durkheim ([1893] 1993) wished for but never saw. Robert Putnam fears that we are "bowling alone" and not in leagues (1995, 2000). Will computer-supported social networks reconnect the disaffiliated? The wired, networked world should be a more multifaceted, uncertain place than the little box world of palpable, solidary groups.

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