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Studying the Internet Through the Ages

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Pre-History

As a tribal elder, I often think back to the state of Internet and society scholarship before the dawning of the Internet. Although sociologist Roxanne Hiltz and computer scientist Murray Turoff had published their prophetic *Network Nation* in 1978, linking social science with computerized communication, the word "Internet" hadn't been invented.

As one of the first social scientists to be involved in research studying how people communicate online, I started going in 1990 to biannual gatherings of the then-tribe: CSCW (computer supported cooperative work) conferences that were dominated by computer scientists writing "groupware" applications. Lotus Notes applications were in vogue. Lab studies were the predominant research method of choice, summarized in Lee Sproull and Sara Kiesler's *Connections* (1991).

But all that people wanted to deal with were small closed groups. I remember standing lonely and forlorn at the microphone during a comments period at the CSCW 1992 conference. Feeling extremely frustrated (and now prophetic), I exclaimed:

> You don't understand! The future is not in writing stand-alone applications for small groups. It is in understanding that computer networks support the kinds of social networks in which people usually live and often work. These social networks are not the densely-knit, isolated small groups that groupware tries to support. They are sparsely-knit, far-reaching networks, in which people relate to shifting relationships and communities. Moreover, people don't just relate to each other online, they incorporate their computer mediated communication into their full range of interaction: in-person, phone, fax, and even writing.

I pleaded for paying more attention to how people actually communicate in real life. But this approach was disparagingly referred to as "user studies," much less exciting to computer geeks than writing new applications. Conference participants listened politely and went back to developing applications for small

groups. I helped develop one too, for it was exciting and fun to collaborate with computer scientists and be one of the few sociologists who actually built stuff. Maybe, we'd get rich and famous. Our Cavecat/Telepresence desktop videoconferencing systems were stand-alone groupware at their then-finest (Mantei et al., 1991; Buxton, 1992). But, they never got out of the laboratory as our grant ran out and they were expensive to hardwire in those pre-Internet days. Little did we realize that Cisco would appropriate our Telepresence name as a trademark 15 years later, without so much as a hand-wave.

The First Age of Internet Studies: Punditry Rides Rampant

Economic forces were already fueling the turn away from stand-alone groupware towards applications that supported social networks. This was the proliferation of the Internet as it became more than an academic chat room. Unlike groupware, the Internet was open-ended, far-flung, and seemingly infinite in scope. The Internet became dot.com'ed, and the boom was on by the mid-1990s.

The Internet was seen as a bright light shining above everyday concerns. It was a technological marvel, thought to be bringing a new Enlightenment to transform the world. Communication dominated the Internet, by asynchronous email and discussion lists and by synchronous instant messaging and chat groups. All were supposedly connected to all, without boundaries of time and space. As John Perry Barlow, a leader of the Electric Frontier Foundation, wrote in 1995:

> 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. 56).

In their euphoria, many analysts lost their perspective and succumbed to presentism and parochialism. Like Barlow, they thought that the world had started anew with the Internet (*presentism*). They had gone beyond groupware, and realized that computer-mediated communication – in the guise of the Internet – fostered widespread connectivity. But like the groupware folks, they looked at online phenomena in isolation (*parochialism*). They assumed that only things that happened on the Internet were relevant to understanding the Internet. Their initial analyses of the impact of the Internet were often unsullied by data and informed only by conjecture and anecdotal evidence: travelers' tales from Internet *incognita*. The analyses were often utopian: extolling the Internet as egalitarian and globe-spanning, and ignoring how differences in power and status might affect interactions on and offline. The dystopians had their say too, worrying that "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" (Texas broadcaster Jim Hightower, quoted in Fox, 1995, p. 12).

Pundits and computer scientists alike were still trying to get a handle on what was happening without taking much account of social science knowledge. In my frustration, I began to issue manifestos in the guise of scholarly articles. Two presented my case, based on my 30-plus years of experience as a social network analyst and community analyst. "An Electronic Group is Virtually a Social Network" (1997) contrasted groups and groupware with social networks and social networkware. It asserted that the Internet was best seen as a computer-supported social network, in fact the world's largest component (a network in which all points are ultimately connected, directly or indirectly). The second paper, "Net Surfers Don't Ride Alone" (with Milena Gulia, 1999) took aim at the vogue for calling every interaction online a "community." It argued that the Internet was not the coming of the new millennium, despite the gospel of *Wired* magazine (then the *Vogue* magazine of the Internet), but was a new technology following the path of other promoters of transportation and communication connectivity, such as the telegraph, railroad, telephone, automobile, and airplane. It showed how community dynamics continued to operate on the Internet – this was not a totally new world – and how intertwined offline relationships were with online relationships.

The Second Age of Internet Studies: Systematic Documentation of Users and Uses

The second age of Internet studies began about 1998 when government policy-makers, commercial interests, and academics started to want systematic accounts of the Internet. They realized that if the Internet boom were to continue, it would be good to describe it rather than just to praise it and coast on it. But the flames of Internet euphoria dimmed with the collapse of the dot.com boom early in 2000. The pages of *Wired* magazine shrank 25 percent from 240 pages in September 1996 to 180 pages in September 2001, and then shrank another 17 percent to 148 pages in September 2003: a decline of 38 percent since 1996.

Moreover, the uses of the Internet kept expanding and democratizing. The initial killer applications of communication – variants of email and instant messaging – were joined by information, via the Netscape/Internet Explorer enabled World Wide Web. Search engines, such as Alta Vista and then Google moved web exploring beyond a cognoscenti's game of memorizing arcane URLs and IP addresses. What exactly was going on, besides the hype of Internet promotion by the mass media, governments, NGOs, entrepreneurs, and academics going for suddenly available grants?

The Internet opened our field up way beyond small-group studies. The second age of Internet studies was devoted to documenting this proliferation of Internet

users and uses. It was based on large-scale surveys, originally done by marketing-oriented firms (and with some bias towards hyping use), but increasingly done by governments, academics, and long-term enterprises such as the Pew Internet and American Life Study (www.pewinternet.org) and the World Internet Project (www.worldinternetproject.net). These studies counted the number of Internet users, compared demographic differences, and learned what basic things people have been doing on the Internet. For example, we came to know that a majority of adults in many developed countries have used the Internet, and women were rapidly increasing their presence. However, we discovered that the socioeconomic gap persists in most countries even with increasing use, because poorer folks are not increasing their rate of use as much as wealthier, better-educated ones (Chen & Wellman, 2005).

Neither the utopian hopes of Barlow nor the dystopian fears of Hightower have been borne out. Despite Barlow's hopes, the Internet has not brought a utopia of widespread global communication and democracy. Despite Hightower's fears, high levels of Internet use have not lured people away from in-person contact. To the contrary, it seems as if the more people use the Internet, the more they see each other in person (distance permitting) and talk on the telephone (see the studies in Wellman & Haythornthwaite, 2002). This may be because the Internet helps arrange in-person meetings and helps maintain relationships in between meetings (Haythornthwaite & Wellman, 1998). It may also mean that gregarious, extroverted people will seize on all media available to communicate (Kraut et al., 2002).

To the surprise of some, the purportedly global village of the Internet has not even destroyed in-person neighboring. In "Netville," a suburb near Toronto, the two-thirds of the residents who had always-on, super-fast Internet access knew the names of three times as many neighbors as their unwired counterparts, spoke with twice as many, and visited in the homes of 1.5 as many (Hampton & Wellman, 2003). Given opportunities to organize, people will often connect with those who live nearby, online as well as offline (Hampton, 2007).

Yet, the globe-spanning properties of the Internet are obviously real, nowhere more so than in the electronic diasporas that connect émigrés to their homeland. In so doing, they enable diasporas to aggregate and transmit reliable, informal news back to often-censored countries (Miller & Slater, 2000; Mitra, 2003; Mok, Wellman, & Carrasco, 2009).

The Third Age: From Documentation to Analysis

The use of the Internet has kept growing. But, its proliferation has meant that it no longer stands alone, if it ever did. It has become embedded in everyday life. The ethereal light that dazzled from above has become part of everyday things. We have moved from a world of Internet wizards to a world of ordinary people routinely using the Internet. The Internet has become an important thing, but it is not a special thing. It has become the utility of the masses, rather than the

plaything of computer scientists. Rather than explosive growth, the number of Internet users has become steady state in North America, although the types of Internet use have proliferated. Yet, the burgeoning of diverse Web 2.0 applications, from Facebook social-networking software to YouTube home videos, has increased desires to know about which applications to use. Reflecting the routinization of the Internet, *Wired* has moved from its *Vogue*-ish origins to become more of a how-to-do-it magazine. Its length of 160 pages in September 2008 is an 8 percent increase from September 2003, although I wonder how it will withstand the new global recession.

How do scholars engage with the Internet in this third age? The first two ages of Internet studies were easy. In the first age, little large-scale data were used, just eloquent euphoria or despair. In the second age, researchers grabbed low-hanging fruit using standard social scientific methods – surveys and fieldwork – to document the nature of the Internet.

Two opposing – but complementary – trends are now apparent in the third age. One trend is the development of "Internet studies" as a field in its own right, bringing together scholars from the social sciences, humanities, and computer sciences. The annual conference of the Association of Internet Researchers (AoIR) started in 2000, and has become institutionalized in the last few years, so much so that many participants do not realize what a shoestring, hope-filled gathering the first meeting was at the University of Kansas. AoIR quickly became international, with conferences in the Netherlands, Australia, Canada, and Denmark attracting many hundreds. Its AIR list serve is even bigger. For vacation-minded researchers, the Hawaii International Conference on System Science offers a congenial venue. Many journals, often backed by major publishers, focus on the Internet and society, including *Computers in Human Behavior*, *Information, Communication and Society* (which puts out an annual AoIR conference issue), *The Information Society*, the online-only *Journal of Computer Mediated Communication*, *New Media and Society*, and the *Social Science Computing Review*.

The second trend is the incorporation of Internet research into the mainstream conferences and journals of their disciplines, with projects driven by ongoing issues. This brings the more developed theories, methods, and substantive lore of the disciplines into play, although sometimes at the cost of the adventurous innovativeness of interdisciplinary Internet research. I take two examples from my own discipline of sociology.

One phenomenon is the incorporation of the longstanding concern about the "digital divide" into the study of stratification. Moving beyond the second-age counting of which kinds of people are on – or off – line, Eszter Hargittai (2004) has shown the differential distribution of skills – and not just access – in the American population. It is not just getting connected; it is getting usably connected. Put another way, there are non-economic factors of social inequality – linked to skill and cultural capital – that strongly affect the structure of increasingly computerized societies and the life chances of their members (DiMaggio et al., 2004).

A second continuing debate has been about the loss of community first discussed more than a century ago, by Ferdinand Tönnies in 1887. Instead of the

former debate about whether industrialization and urbanization had withered community, research now turned to television (Putnam, 2000) and the Internet (Kraut et al., 1998, 2002). Systematic field research showed that community ties were thriving, with online connectivity intertwined with offline relationships (Wellman & Haythornthwaite, 2002; Boase et al., 2006; Wellman et al., 2006; Wang & Wellman, 2010). For example, our NetLab is currently looking at what kinds of relationships the Internet does (and does not) foster. As an overarching thought, our NetLab believes that the evolving personalization, portability, ubiquitous connectivity, and wireless mobility of the Internet are facilitating a move towards individualized networks (Kennedy et al., 2008). The Internet is helping each person to become a communication and information switchboard, between persons, networks, and institutions.

What of groupware, where I started nearly 20 years ago? It has been transmuted from supporting small closed groups into social-network software that connects dispersed, complex networks of friends and colleagues and helps to connect the hitherto unconnected.

I am not standing alone any more. Groups have clearly become networked individuals: on the Internet and off it (Wellman, 2001, 2002). The person has become the portal.

Note

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