

The three ages of internet studies: ten, five and zero years ago

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PRE-HISTORY, 10 YEARS AGO

Permit me as a tribal elder to exceed my bounds and think back to the state of scholarship in our field 10 years ago. Although Murray Turoff and Roxanne Hiltz had published their prophetic *The Network Nation* in 1978, it was pre-internet history then.¹

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

I remember standing lonely and forlorn at the microphone during a comments period at the CSCW 1992 conference. Feeling extremely frustrated, 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 than writing new computer applications.

Conference participants listened politely and went back to developing applications. I even helped to develop one, for it was exciting and fun to collaborate with computer scientists and to be one of the few sociologists who built stuff. Maybe we would get rich and famous. Our *Cavecat/Telepresence* desktop videoconferencing systems were stand-alone groupware at their then-finest (Buxton, 1992; Mantei et al., 1991). But they never got out of the laboratory.

THE FIRST AGE OF INTERNET STUDIES, PUNDITRY RIDES RAMPANT

Yet, 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 chatroom. 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. (1995: 36)

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. 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 insisted on looking at online phenomena in isolation. 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. They extolled the internet as egalitarian and globe-spanning, and ignored the way in which differences in power and status might affect interactions both online 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: 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 papers presented my case based on my 30-plus years of experience as an analyst, studying communities as social networks. '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 (to use graph theoretical language, which describes a network where all points are ultimately connected, directly or indirectly). '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 (the *Vogue* 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 five years ago. Around 1998, government policymakers, commercial interests and academics all realized the need for systematic accounts of the internet. 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 the dot.com boom dimmed early in 2000, and with it the internet came down to earth. The pages of *Wired* magazine shrank 25 percent from 240 pages in September 1996 to 180 pages in September 2001, and yet another 17 percent to 148 pages in September 2003: a decline of 38 percent since 1996.

At the same time, the use of the internet kept growing. However, 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 not a special thing. It has become the utility of the masses rather than the plaything of computer scientists.

Moreover, the uses of the internet kept expanding and democratizing. The initial 'killer applications' of communication were joined by information via the Netscape/Internet Explorer enabled world wide web. Search engines, such as AltaVista and then Google, moved web exploring beyond a cognoscenti's game of memorizing arcane URLs and IP addresses. Still later, web logs moved web creation beyond institutional designers' expertise to everyperson's soapbox.

The second age of internet studies has been devoted to documenting this proliferation of internet users and uses. It has been based heavily 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 & American Life Project (<http://www.pewinternet.org>) and the World Internet Project (<http://www.worldinternetproject.net>). These studies have counted the number of internet users, compared demographic differences, and learned what basic things people have been doing on the internet. For example, we now know that a majority of adults in many developed countries have used the internet, and that women are coming to use the internet as much as men in many developed countries. However, the socioeconomic gap persists in most countries even with increasing use, because poorer people are not increasing their rate of use as much as wealthier, better-educated ones (Chen and Wellman, 2004).

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 and Haythornthwaite, 2002). This may be because the internet helps arrange in-person meetings and helps maintain relationships in between meetings (Haythornthwaite and Wellman, 1998). It may also mean that gregarious, extroverted people will seize on all media available in order 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 the homes of 1.5 times as many (Hampton and Wellman, 2003). 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 and Slater, 2000; Mitra, 2003).

THE DAWNING OF THE THIRD AGE – FROM DOCUMENTATION TO ANALYSIS

It has been easy until now. At first, no data were needed, just eloquent euphoria. The second age was low-hanging fruit with analysts using standard social scientific methods – and some concepts – to document the nature of the internet.

Now, the real analysis begins with more focused, theoretically-driven projects. For example, our NetLab is currently looking at the kinds of relationships that the internet does (and does not) foster, and how transnational entrepreneurs operate intercontinentally, both online and offline. As an overarching thought, we believe that the evolving personalization, portability, ubiquitous connectivity, and wireless mobility of the internet is facilitating a move away from interactions in groups and households, and towards individualized networks. The internet is helping each person to become a communication and information switchboard, between persons, networks, and institutions.

What of groupware, where I started a decade ago? As none of us predicted then, groupware transmuted into social network software as both individuals and organizations feel a need to contact dispersed others. The need for this has received great publicity: Between June and September 2003, Google reported about 9700 stories about Duncan Watts and associates' tracing of how the internet connects unknown persons in 'small worlds' (Dodds et al., 2003). Social network software exists to connect the hitherto unconnected, helping people to make new ties. It comes in two flavors:

- (1) Friendship makers (such as friendster.com) which put friends of friends in contact or uses collaborative filtering (such as match.com and lavalife.com) to connect people with similar interests. My students report this as effective and enjoyable as going to bars or other 'meet [meet] markets', and more efficient;
- (2) Corporate network programs which are used to portray the social (dis)integration of workgroups or to help access knowledge in sprawling organizations (and not 'who knows who knows what' as IKNOW puts it: Contractor et al., 1998; see also Nardi et al., 2001).

I am not standing alone any more. Groups have clearly become individualized networks; on the internet and off of it (Wellman, 2001, 2002). The person has become the portal.

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Note

1 Hiltz and Turoff named their book after my 'The Network City' paper (Craven and Wellman, 1973) – which had nothing explicitly to do with computer networks but everything to do with a network conception of communities.

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