

## **the future of democracy and the four fundamentals of computer-mediated communication**

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A tremendous power shift is underway, and despite the obscure or phoney terminology used to describe it, this power shift is about people, and our ability to connect with each other in new ways, much more than it is about fiberoptic cables and multimedia appliances. The revolution triggered by the printing press was about literacy, and what literate populations are capable of doing (e.g., governing themselves), long after it had anything to do with the mechanics of moveable type. The technology enabled the power shift, but people who used the tool to educate themselves created the power shift. There is a lot of talk about "information super-highways" these days. I understand why the metaphor is used, but it doesn't interest me. Highways are boring. Communities are more exciting. And I still believe that the community aspects — the person-to-person communications, not the access to entertainment and information — are what draw people to the new computer-mediated communication media.

In my travels in North America, Europe and Japan, it has struck me time and again that the same grassroots, citizen-to-citizen movement, now known as the virtual community, is simply popping up everywhere people have access to a public switched telecommunication network and affordable desktop computers. I believe computer conferencing can be a force for rebuilding a sense of community in our fragmented society. And I believe the ability and freedom of citizens to communicate with each other without prior restraint on their expression is as fundamental to democracy as it is to community. We need to understand the world in a new way, and we need to do it quickly, if we are to preserve individual liberties in the face of ever more powerful states. Art and artists help us all see the world in a new way, and re-perceiving the world is the necessary prior step to understanding it anew.

The power of virtual communities and computer networks derives from four unique characteristics of computer-mediated communications:

- First, it's a many-to-many medium;
- Second, it allows people to connect with each other in new ways;
- Third, the power of the technology that supports the communities will continue for the foreseeable future to be very powerfully potentiated by the convergence of all media to digital forms.

Finally, cyberspace has the potential to become a platform for innovation that can enable entrepreneurs to create new uses for the new medium. New applications, new cultures, new businesses, new markets, new wealth, new power, for larger and wider groups of people, can be built on a technological platform that is sufficiently open to innovation.

A many-to-many-medium is one that allows large numbers of people to communicate effectively with large numbers of people. A one-to-many medium is something like a newspaper or television station, where a small number of people use an expensive technology to broadcast information to a large number of people. The reporters and editors and producers and owners of these media are gatekeepers, who determine which information the far larger audience sees, and which information it doesn't see. One-to-many media are usually centralized. To seize control of such a medium requires either a lot of money to buy airtime, or else a division of paratroopers to capture the broadcasting center.

With a computer, a modem, and a telephone line, every person can become a publisher; every desktop can be a broadcasting station. Large groups of people, scattered across large geographic areas, can use public "bulletin-board" media and private electronic mail to communicate interactively with each other, to publish manifestos, conduct debates, seek consensus, organize action. Each node of a computer-mediated communication network is both a consumer and a producer of information. Every desktop is a printing press, an electronic soapbox, a multimedia-broadcasting center. Each node is potentially connected to each other node. The power of many-to-many media is radically decentralized, and is thus dangerous to highly centralized power structures.

One very obvious example: The dramatic political potential of many-to-many media was demonstrated during the Tiananmen Square incident, where dissident Chinese students used telephones and radios to get eyewitness information out of China, and the worldwide collection of discussions known as Usenet. I remember how I turned to my computer, not my television, as the network matured during the days of the crisis, and the amount of information on that channel quickly grew beyond my ability to assimilate it.

Again, during the Soviet coup attempt at the end of the Gorbachov era, the Net served as a backchannel to get news to the outside world, and as a medium within Russia for organizing resistance. Sources in the media used this information as one of their "sources" for news reports. When the second coup attempt happened, the daughter of an on-line friend was able to look out of her Moscow apartment building and see a view of the Russian White House that the CNN camera crew wasn't getting. Her e-mail dispatches were dispersed to uncounted thousands, perhaps more, people, in real time, as events progressed. It was a dramatic description of what it felt like to be in an apartment building a block away from artillery fire.

In the case of the most fundamental computer-mediated communication medium, the electronic bulletin board system, the many-to-many technology is ridiculously inexpensive, because the development costs were paid for by other uses. It took a hundred years and billions of dollars to wire the world into a switched telecommunication network. It took half a century and billions of dollars to create computers you could afford to put on your desk. A ten-year-old kid with a hundred dollars can plug those two technologies together today and have every major university library on earth, a bully pulpit, and a world full of co-conspirators at her fingertips.

And now, the second source of power to this new medium is that it enables people to connect with each other in breakthrough ways. A high school student in Taiwan, a grandmother in Prague, a business man in silicon valley or Osaka can "meet" to discuss ecology or astronomy, politics or parenting, high technology or antiques. And from those public connections they can create personal relationships — cutting through traditional barriers of gender, age, race, class, nationality, physical location. Industries, marketplaces, communities are what can emerge from the web of connections and relationships.

Don't forget that the telephone was originally sold strictly as a business tool — and it was the demand from ordinary people who wanted to talk with each other about everything but business that forced the early telephone companies to provide the service that has proved to be the most popular - the use of the telephone as a social tool. It was the customers who invented the telephone system, once they had access to the technical infrastructure.

In France, something similar happened with computer-mediated communications. The government created a national distributed database and telecommunications infrastructure and

gave away 6 million Minitel terminals. The people who created the French system designed it as a one-to-many way of providing telephone directories and other databases of information to the French population. Then some of the early customers hacked the Minitel system to enable them to communicate with each other. Michel Landaret, the director of the early experimental Minitel service where the customers started using a hacked chat program to communicate with each other, was smart enough to recognize that his customers were trying to tell him what business he was in. The chat services quickly grew to be the most popular and lucrative sources of income for France Telecom.

The point of both stories, about the telephone in America and the Minitel in France, is that people want to connect with each other more than they want to connect with raw information.

People will invent the reasons to use a communication medium, given the tools to roll their own.

And the third source of power - the convergence of all other media into a single, digital medium. The people who are designing the next generation of hardware for the Net know that the same pipeline will carry text, voice, video, graphics, and even computer programs. All this talk of "multimedia" that takes place in magazines and newspaper and expensive conferences might be aimed in the wrong direction.

Nobody knows which kind of box, what type of appliance, people are going to be willing to purchase by the millions, to take advantage of this new medium. It might be CD-ROM or CD-I or DVI or videodisk. Nobody really knows. And nobody is quite sure what the content of the medium will be.

But one thing is certain: any information you can store on a CD-ROM or computer disk can be sent over the network and integrated with the markets and communities that are growing up around the text-only form of the medium. When you add multimedia capabilities to the many-to-many and interpersonal connectivity capabilities of the Net, then perhaps the population of consumers will create the content on their own, invent their own reason for using these new boxes to connect to the information pipelines, all by themselves, the way they did for the telephone. And that leads to the fourth and final source of power — the medium's potential for becoming a platform for innovation.

An example is Apple Computer.

The entire personal computer industry succeeded because these tiny new companies that started up in the 1970's did something completely counter to the marketing strategy of IBM and the established computing industry. Instead of trying to grab an enormous market share and lock in as much of the market as possible to their own proprietary systems, Apple created an open system and catered to enthusiasts. They left open slots in their first computers, so third-party inventors could come up with hardware to enhance the computer. They sent out "evangelists" to convince software entrepreneurs to write programs for their computers, and actively cooperated in sharing the technical specifications necessary to do that.

What happened was an explosion of other garage inventors who hoped to piggyback on the success of Jobs and Wozniak. Many of them made large personal fortunes. The people who invented VisiCalc, however, the first spreadsheet for the Apple II, are widely credited with creating the first robust market for personal computers. The Apple II was a platform for

innovation. Just one of those innovations, the electronic spreadsheet, triggered the astonishing growth that turned Apple into a multi-billion dollar company.

An industry based on a platform for innovation enables the customers to create and profit from inventing new, lucrative uses for the industry's product.

Communications among citizens is the most basic building block of democratic societies. Philosophers such as John Locke and pamphleteers such as Tom Paine were passionate believers in the radical notion that a population can govern itself if people are educated enough and free enough to discuss issues among themselves. Citizens, not kings, would be able to govern themselves, not only by electing representatives by secret ballot, but by knowing and discussing the issues that affect them. This notion was called "the public sphere."

In some ways, the mass media, the one-to-many-media, particularly television, changed the mode of discourse among citizens in a way that didn't help democracy. The public sphere became a commodity that could be bought and sold. Reasoned argument lost ground to riveting images and emotional sound bites. Citizens started communicating with each other less and less as the advertising industry learned how to package and market issues and candidates. The spectacles, the hyper-real, the commodification of the public sphere, are all names for political analyses of the results of the dominance of mass media over the past 40 years. I believe they are valid analyses, but they don't deal with the hierarchy dissolving, de-massifying effects of computer mediated communications networks.

Many-to-many media, as long as they are accessible to the entire population, affordable, easy to use, and legally protected as a forum for free speech, offer a promise of revitalization of the public sphere.

In the 1500's, the foundations for democracy were created when the information technology known as the printing press broke the Church and King's monopolies on publishing. Within a century after Gutenberg, tens of millions of Europeans were literate. That literacy was the foundation of democracy. Might the simple BBS be the printing press of the next revolution?

Clearly, now is a time for artists to take their place strongly in the dialogue about the kind of societies and the kind of people we are creating through the technologies we are choosing to use. The first formidable barrier to artists, access to the means of production, has fallen recently with the affordability of desktop video, desktop audio, desktop graphics. The second formidable barrier, access to the means of distribution, has fallen with the explosive growth of computer communications networks.

Along with the economic and political infrastructures and the enabling technologies, the human interface to the Net is changing rapidly, as well. The difficulty of using the tools of production has been a barrier to artists, as well. The Net has been too abstract for all but the most computer-sophisticated to perceive as a medium for artistic expression. Recent events in the evolution of the Net's human interface are going to change that. It took my friend Joi Ito, on my last trip to Tokyo, to show me the visible window into the Net. What had previously been a silent alphanumeric abstraction for years, popped into full sensory reality for me.

Joichi Ito's family stone in Iwate might record the names of 27 generations, but Joi is a distinctly 21st century lad. After a late dinner in Roppongi, on a rare snowy night in Tokyo in early 1994, we went to his apartment to kill some time on the Net before the Tokyo rave scene

woke up. A Mosaic page painted itself on his PowerBook screen. Along the left side were postage-stamp pictures of galaxies and pop groups. Next to the pix were headlines and subheads. Even before he issued a command, I knew I was looking at a new world. I literally jumped, the first time Joi pointed at the picture of a pop group and music came out of his computer's speaker.

"I've been teaching myself hypertext markup language," he remarked. Joi is always teaching himself something I've never heard about before. This language is a code that gives him the power to broadcast video, graphics, and text stored on his computer to tens of millions of Internet nodes.

I remember my first sight of a Macintosh in 1984. I remember the first time I logged onto the WELL in 1985. I remember the vertigo of reading through the names of thousands of newsgroups the first time I fell into Usenet. I've learned to recognize those moments when a technological breakthrough sucks us all into a new dimension. Mosaic in Joi's hands had that instantly-recognizable look of the future to it. Mosaic might be the "killer app"-the unexpected application of a technology that drives the technology to become a mass medium, like spreadsheets were for personal computers. It definitely has a beat you can dance to.

Outside Joi Ito's apartment, in the streets of Harajuku, Tokyo teenagers were cycling through a well-designed media loop: Fashion designers and retailers decide what trend to sell next month, their new look is transmitted at precisely-timed intervals to the appropriate tribes via popular magazines and "idol" singers. Joi Ito, however, rolls his own media.

A Mosaic home page looks like the table of contents from a full-color, slick-paper magazine. There are menus directing you to some of Joi's personal information — multimedia self-portraits. There's a video of Joi jumping out of an airplane. But Joi wanted to soar higher.

"First, let's see space," he said, and Joi clicked on the menu item for ""Hubble Pictures." It took a minute to suck down the image from its home on a computer 15 time zones away. Then a detailed color image of a distant galaxy, beamed to Earth from the Hubble Space Telescope that morning, popped up on his screen".

"How about the weather?" I pick one of the little pictures of parts of planet Earth — the North Pacific, because that's where we were at that moment. In a few seconds, I was watching a weather movie on the screen, beamed down from a satellite an hour ago.

MTV.COM's was cool. This was a digital outpost that MTV had set up on the Internet. Clicking on an icon on Joi's screen connected his computer in Tokyo to MTV's Internet site in the U.S. I browsed album covers, tried a few samples of the songs on the albums. There's a short video of a VJ (I guess he's now an "EJ") blasting off in a rocket ship, to the accompaniment of Elton John's "Rocketman."

Joi Ito's Tomogaya is a Net-zine, an on-line, multimedia version of an only slightly older cultural phenomenon that bubbles up from populations that have access to communications technology. Zines came from a generation who don't care about the mass-media, Zinesters want to get together with a few friends, jam with xerox machines and computer paint programs, print it out at night on the boss's laser printer, and put it out therefor a select cult audience.

Joi and his nethead friends have their own ideas of where techno-culture is headed. They want to play the Net like their parents wanted to play electric guitar. I watch where they're pointing because they might know something about where we're going.

The battle for the shape of the Net is joined. Part of the battle is a battle of money and power, but the great lever is still understanding — if enough people can understand what is happening, I still believe that we can have influence. Whether we live in a surveillance state or democratic society ten years from now might depend, in no small measure, on what you and I know and do now. The outcome remains uncertain. What the Net will become is still, in large part, up to us. And as always in times of political chaos, the role and responsibility of the artist is never more important.