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A Democratic Internet?

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Abstract:

The debate over the contribution of the Internet to democracy is far from settled. Some point to the empowering effects of online discussion and fund raising on recent electoral campaigns in the US to argue that the Internet will restore the public sphere. Others claim that the Internet is just a virtual mall, a final extension of global capitalism into every corner of our lives. This paper argues for the democratic thesis with some qualifications. The most important contribution of the Internet to democracy is not necessarily its effects on the electoral process but rather its ability to assemble a public around technical networks that enroll individuals scattered over wide geographical areas. Medical patients, video game players, musical performers, and many other publics have emerged on the Internet with surprising consequences.

My title ends in a question mark for the very good reason that the Internet is still in question. It is not a fully developed technology like the refrigerator or the electric razor. We do not yet know what its final form will be. That has not prevented a huge outpouring of literature hyping the Internet as the solution to all our problems or criticizing it as a looming media catastrophe. In fact this controversy is the best evidence that the Internet is not a finished work. The case cannot be closed while the debate continues with such fierce intensity.

In the early days, the Internet was called ARPANET, after the Advanced Research Projects Agency of the defense department that specialized in “blue sky” projects, projects so wild and speculative no normal government agency would dare fund them. The engineers associated with its early development were enthusiasts who believed their work would have enormous beneficial impacts. They prophesied a global community organized by computer networks. One of these early enthusiasts, Vinton Cerf, waxed poetic in his “Requiem for the APRANET. He wrote:

Like distant islands sundered by the sea,
we had no sense of one community.
We lived and worked apart and rarely knew
that others searched with us for knowledge, too...

But, could these new resources not be shared?
Let links be built; machines and men be paired!
Let distance be no barrier! They set

that goal: design and build the ARPANET!
(quoted in Abbate, 1994.)

Cerf was a better engineer than poet, but we get the idea!

The Internet gradually went public in the 1980s, but even before that social commentators were prophesying great things from computer mediated communication. In 1978 Murray Turoff and Roxanne Hiltz published a serious work of analysis and prediction entitled *The Network Nation* (1993). They foresaw widespread adoption of computer networking for telework and education. They believed networking would promote gender equality and speculated that electronic discussion and voting would revivify the public sphere in democratic societies.

They may have over-estimated the transformative power of their favorite technology, but their projections were modest compared to many that came afterwards. According to a whole new genre of Internet hype, networking was a change comparable in significance to the Industrial Revolution and would soon transform every aspect of our daily lives. Cities would be depopulated as people retreated to electronic cottages in the woods. Government as we know it would be replaced by continuous electronic plebiscites. Artificial intelligences would learn our preferences and control the mechanical world around us without our having to lift a finger. Even sex would be transformed through remote access to virtual partners.

Naturally, the hype called forth its demystification. The technology critic David Noble wrote "visions of democratization and popular empowerment via the net are dangerous delusions; whatever the gains, they are overwhelmingly overshadowed and more than nullified by the losses. As the computer screens brighten with promise for the few, the light at the end of the tunnel grows dimmer for the many" (Noble, consulted Nov. 11, 2006: 12).

Noble expressed the widespread skepticism about the Internet that appeared in the 1990s as it became a theme of popular discussion. Social critics point to a number of phenomena that seem to them inimical to democracy. Some argue that the digital divide excludes the poor from participation while enhancing the powers of the well-to-do. Others complain that on the Internet people are able to segregate themselves from those with whom they disagree so that discussion there merely reinforces preexisting prejudices. Still others argue that the Internet is so thoroughly colonized by business that it is little more than an electronic mall.

But, of all these critiques, the most serious challenges the ability of the Internet to support real human communication and therefore human community. Without face-to-face contact, it is said, people cannot take each other seriously enough to form a community. How can moral roles bind us and real consequences flow from interactions that are no more durable than a flicker on the screen? Albert Borgmann writes, "plugged into the network of communications and computers, people seem to enjoy omniscience and omnipotence; severed from their network, they turn out to be insubstantial and disoriented. They no longer command their world as persons in their own right. Their conversation is without depth and wit; their attention is roving and vacuous; their sense of place is uncertain and fickle" (Borgmann, 1992: 108. But for his later view, see Borgmann, 2004). Mark Slouka is even more alarmed, writing, "I believe it is possible to see,

in a number of technologies spawned by recent developments in the computer world, an attack on reality as human beings have always known it" (Slouka, 1995: 4).

In this talk I intend to respond to these sorts of criticisms and to argue that the Internet does have value for democratic deliberation. I do not want to exaggerate the significance of the Internet. It will not replace our customary democratic institutions with a universal electronic town hall meeting. On the other hand, exaggeration in the opposite direction seems to me to reflect a lack of perspective. It threatens to blind us to real possibilities that should be seized rather than dismissed. These possibilities have to do with online community, supported by the Internet, and given over, as the critics note, to endless talk. But I will argue that since discussion lies at the heart of a democratic polity, any new scene on which it unfolds enhances the public sphere.

Complaints about the Internet are similar to complaints about television broadcasting and in fact it seems that bad experience with the latter has shaped negative expectations about the former. Recall that television promised a "global village" in which new solidarities would arise from easy access to information about other peoples and their problems. It is true that lots of information circulates on the evening news but the consequences of broadcasting are not entirely benign. It is also used for propaganda and to influence lifestyle choices. Aldous Huxley published *Brave New World* in the early 1930s, only a few years after the first commercial radio broadcasts, but already his dystopian vision of a totally manipulated public captured the very real threat. Many social critics seem to have concluded that technical mediation as such leads to mass alienation. Can the Internet be squeezed into this same pattern? I do not believe so.

The difference between television and the Internet is a consequence of their different technical structures. In broadcasting a single source sends out messages to a mass audience. The Internet enables reciprocal communication among small groups. The members of these groups both receive and emit information. There is a return here to the normal pattern of human communication in which listening and speaking roles alternate rather than being distributed exclusively to one or another interlocutor.

The original military design of the Internet comes to the aid of ordinary users by rendering it difficult to transform it into a broadcast technology. Military planners were more interested in survivability than control. For this reason their design was non-hierarchical and redundant, qualities that later turned out to privilege the free flow of information and innovation. This design persists and poses significant problems for business and repressive governments while also enabling both public spirited and socially stigmatized activities to go on unhindered.

The possibility of normal reciprocal communication on the Internet should interest us more than it does. This is in fact the first technical mediation of small group activity. There used to be only two forms of mediation: the telephone allowed two individuals to interact and broadcasting addressed mass audiences. The huge range of human activities that go on in small groups could not be technically mediated and therefore could only be carried out in face-to-face settings. That limitation is now overcome and this is an important advance that we tend to overlook since it seems so obvious after 20 years of widespread online communication.

The critics of the Internet underestimate this phenomenon and respond more to the exaggerated claims of Internet hype than to the reality of online experience, including even their own. For example, consider Hubert Dreyfus' book on the Internet in

which he focuses his attack on a group called the Extropians who look forward to the day their brains can be downloaded into computers (Dreyfus, 2001). Somehow, this group is supposed to be significant, although except as an example of fantasy gone wild I do not see what it can signify to those of us who use the Internet daily while remaining firmly committed to embodied existence. To confuse matters further, Dreyfus dodges the charge of Luddism at the end of the book by explaining his use of the Internet in his classes at Berkeley where he teaches. Nowhere does he reflect seriously on the significance of small group communication in public life, the signal contribution of the Internet to democracy. Instead, he actually dismisses online discussion as trivial because not carried on with sufficient expertise or commitment. But that is not so much a critique of the Internet as of democracy itself.

What is missing in the critics' account is any sense of the great victory represented by ordinary human communication on the Internet. There is a long history of communication technologies introduced for broadcasting or purely official usages that ended up as instruments of informal human interaction. The telephone, for example, was originally intended for serious business conversation. When women appropriated it to organize the social life of their families, engineers complained bitterly about the waste of their beautiful instrument. Even more surprising, the telephone was at first imagined as a broadcasting technology. In the early days, several companies distributed live musical performance to subscribers. In France the Théâtrophone company thrived until 1920 broadcasting operas (Bertho, 1984: 80-81).

The Internet story is similar as we will see, but in fact there is an earlier precedent in the history of computer networking. The first successful domestic network was not the Internet but the French Minitel. Concerned about the slowness of computerization in France, the government established a network based on technology similar to that of the Internet. Six million free Minitel terminals were distributed to telephone subscribers in the early 1980s. These terminals were designed to consult a national electronic phone directory, to read news and ads placed on the system by newspapers, to view train schedules, examination results, and other official documents. But soon after the system was deployed hackers introduced instant messaging. It did not take long for this unexpected application to become the Minitel's single most important usage. Ironically most of the messaging consisted in the search for dates and sex. The cool new information medium was transformed into a hot electronic singles bar (Feenberg, 1995: chap. 7).

Like the Minitel network, the Internet was not originally designed to support human communication and it could have excluded the public. The technology underlying both systems is called packet switching. The United States military saw potential in this technology for building a secure communication system. The telephone network is too vulnerable because it depends on a central computer to connect up correspondents. A single bomb could take out the whole system by hitting this center, but packet switching makes it possible to route messages on the Internet through many different computers and so the system does not depend on the survival of any one of its nodes. Strange as it seems today, radio communication among tank commanders was suggested as an early application of packet switching. Connecting university computers turned out to have more promise (Abbate, 1999).

This original version of the Internet was intended to test the new communication technology on university based military researchers. After World War II, military planners were convinced that American power depended on scientific research, and they believed the scientists who told them that research depended on communication and collaboration. The Pentagon hoped that university scientists would share computing resources and data over the Internet.

Soon after the introduction of the new system, at a time when it connected only a few universities, a graduate student introduced an e-mail program. Back at the Pentagon the leaders of the project met to decide if human communication was a legitimate usage. Like the early telephone company engineers, they were disturbed by wasteful socializing. Fortunately, they agreed to allow the experiment in e-mail to continue. We inherit the consequence of that decision.

To get an idea of its significance consider this example. Suppose that in your university or company, it was illegal to engage in any but official communication. In other words language could only be used for sanctioned purposes. No jokes, no personal remarks, no criticism, not a word about the children, no dates, and so on. Such severe censorship would surely appear totalitarian to people like us. The Internet could have been configured technically in just this way. The result would have been the enhancement of official communication in business and government institutions with no corresponding enhancement of the informal communication in which daily life goes on, including the daily conversations of political significance that form the basis of the democratic public sphere.

This example indicates the need for a different approach to understanding the Internet from that taken by its severest critics. They overlook the human significance of the technology. They focus on the triviality of most of the communications but they fail to realize that without opening a channel for trivial speech, no serious speech gets through. We have no record of the conversations in those 18th and 19th century pubs and coffee houses idealized (perhaps rightly) as the birthplaces of the public sphere, but no doubt in their precincts too much time was wasted. Rather than comparing the Internet unfavorably with edited cultural products like newspapers, it would make more sense to compare it with the social interactions that take place on the street. The coexistence there of the good, the bad and the trivial is normal, not an offense to good taste or intellectual standards because we have no expectation of uniform quality. In what follows I will outline an approach that allows for the dross and also the gold in the flood of words on the Internet.

I intend to do this through an account of the political significance of online community on the Internet. I will not discuss the myriad examples of democratic applications in the usual sense of the term. By now everyone should be at least vaguely familiar with the role of the Internet in the Zapatista movement in Mexico, protests against the WTO and the IMF, American opposition to the War in Iraq, and in the recent elections in the US. Particularly significant is the development of a sustained effort to report the news independent of the major news outlets. Indymedia has broken the near monopoly of the business and government dominated official press and television networks by enabling activists to speak directly to millions of Internet users (McCaughey and Ayers, 2003).

These examples seem to me to provide strong evidence for my position, but they need to be backed up with more fundamental considerations on how we understand the technology and its potentials. A theoretical framework must give them substance. After all, they might be odd exceptions without larger significance and the Internet defined by its role in the distribution of information, goods and pornography. My main concern in what follows is to develop a coherent alternative to this critical assessment. To anticipate my conclusion, I will argue that these political usages of the Internet are instances of a much broader phenomenon, the emergence of new forms of agency in online communities of all sorts.

I want to begin by introducing some essential methodological considerations. As I noted at the beginning of this talk, it is a commonplace error to consider the Internet finished and complete before it has actually achieved its final shape. Critics repeatedly generalize from rapidly changing characteristics to timeless conclusions about the technology that are soon outdated by further changes. But how can we evaluate a technology that is still in process, that is radically incomplete? This problem has been addressed by the new constructivist approaches to technology studies to which I subscribe (Pinch and Bijker, 1987).

The chief idea shared by these approaches is negative: the success of a technology is not fully explained by its technical achievements. There are always alternative paths of development at the outset and social forces determine which are pursued and which fall by the wayside. Behind each of the technical devices that surround us there lies a halo of alternatives that were eliminated at some stage and which we have forgotten or notice only in the quaint illustrations of old books. What is called the principle of “underdetermination” teaches us that technical considerations alone cannot explain why we are living with this particular survivor of the process of elimination rather than that one, why for example we drive gas powered rather than electric cars.

To make matters still more complicated, the struggle between alternatives is not a straightforward competition to achieve the same goal. Subtle differences in goals are often at stake in the contest between means. Approximately the same technology, with a slightly different design, can serve the interests and needs of very different social groups. For example, the early bicycle came in two main varieties, a speedy type with a large front wheel and a slower, more stable version with wheels the same size. The difference between them was not which was better in general, but which value, speed or stability, was to be supreme in the world of bicycles. We know which won out. Thereafter all later evolution of the bicycle benefited the successful line of development. The defeated alternative was left frozen in time like a dinosaur fossil and so appears obviously inferior today in a typical illusion of progress.

Constructivists call this variability of goals the “interpretive flexibility” of technologies. What a technology *is* depends on what it is *for* and that is itself up for grabs in the beginning. The interpretive flexibility of technologies is greatest at the outset and diminishes as the competition between alternatives is sorted out. Finally, closure is achieved in the consolidation of a standard design capable of prevailing for an extended period. This is what happened to the bicycle, the automobile, and all the familiar technologies that surround us. This has not yet happened to the Internet.

This constructivist approach represents technologies not as things but as processes in more or less rapid movement. The process pulls at first in several different di-

rections but is finally stabilized in a single more or less durable form. Because our lives move quickly with respect to these stabilized forms, it appears that they are finished and fixed rather than ultimately temporary arrangements that may enter into flux again at a future date. We assume the functions they serve are the obvious ones similar technologies ought to serve rather than noticing the contingency of their purpose on a particular configuration of social forces that interpreted the problems in a certain way at the outset. Constructivism aims to overcome this illusion in order to restore a more accurate picture of the process of development.

To apply the constructivist approach to the Internet, we need to identify the various versions of it that currently coexist and from among which a selection will finally be made. Note that the closure of the Internet around one or another of these possible configurations does not preclude the survival of the others in subordinate roles. Although operas are no longer heard on the telephone, radio and television broadcasting accommodate many usages. At its inception radio broadcasting was dominated by education and public programming and television was originally conceived for surveillance and education. Both quickly fell under the domination of business oriented networks and are defined today as entertainment media. Other usages were not excluded but the technical and legal possibilities of these alternatives are largely determined by the requirements of entertainment (McChesney, 1999).

Critics of the Internet believe something similar has already happened to it, but they exaggerate the extent of business control so far achieved as I am sure most business people would agree. A truly business oriented network like the Minitel offers possibilities unthinkable on the Internet. The French system was designed to calculate the time each user spent on each service so as to collect revenue through the telephone bill, which could then be shared between the telephone company and the service provider. The X.25 network protocol employed by the French made this possible while also complicating the internationalization of the system. The Internet's IP protocol is unable to provide such a high degree of precision in tracking users, but it has features which have enabled it to spread over the entire globe. Business is a latecomer to the Internet and it is still struggling to gain better control of the system.

I identify three possible futures for the Internet which I call "models" since they aspire to define the dominant features of the technology. Each of these models represents a possible configuration that might have prevailed in the past or that may prevail in the future. I call the three models, the information model, the consumption model, and the community model. As we will see only the community model bears the democratic potential of the Internet.

The Information Model. This model presided over the origins of the Internet and similar systems such as the Minitel network in France. It aims at improving the distribution of information, a function that the Internet fulfills and will undoubtedly continue to fulfill so long as it exists. The information model is not just an implementation of this technical function. It depends on a larger vision in which the widest possible access to information contributes to a higher level of rationalization of society as a whole. This vision reflects sociological theories of the information age according to which knowledge is replacing industrial production as the most important activity in advanced societies. This is what inspired attempts to spread the information model from professional into domestic settings in the 1980s in France and a decade later on the Internet.

In fact it quickly became apparent that personal communication was far more attractive to users of these systems than any economically significant exchange of information. Thus the information model has little chance to prevail as an overall interpretation of the meaning of the Internet.

The consumption model. It is a curious and little known fact that the early Internet was virulently hostile to business. Attempts to sell goods and services on the system were severely repressed. An individual who scandalized the community by engaging in commercial activity would be attacked by hundreds, even thousands, of hostile emails and hackers would go after him. But once the decision was made in the early 1990s to allow commercial activity on the Internet, a tidal wave of corporate initiatives swept over the rather sedate virtual space occupied by individual users and universities. The Internet was the technology behind the famous dotcom boom and even the later bust did not diminish the pace of business activity in cyberspace for long. Today Internet based markets are a factor in the prosperity of nations.

This new type of market inexpensively links up people and goods over a global territory. The most profitable Internet businesses resemble Amazon and E-Bay in stocking little or no inventory, but in delivering a smooth connection between supply and demand. Although email remains the most used function of the Internet, e-business does not lag far behind.

The consumption model has enormous potential for growth because film and television have not yet been fully adapted for delivery over the Internet. We can expect a huge boost in consumption usages when every sort of recorded entertainment is readily available. Already this prospect is pressing on the legislative agenda of the United States government. Entertainment companies and Internet service providers are anxious to obtain the legal right to convert the Internet into an enhanced version of television by privileging high speed delivery of entertainment over other functions served by the system.

This means the end of “network neutrality,” the current rule under which all types of communication are treated equally. If the companies prevail, the Internet may soon become impractical for communication and public usages as bandwidth is monopolized by profit making enterprise. While so far this is primarily an American debate, its effects would be felt worldwide, as is the case with the Digital Millennium Copyright Act. Further development of the technology would undoubtedly follow along lines determined in the US. The triumph of the consumption model would thus transform both the dominant interpretation of the system and its technology.

The community model. This is the model that most resembles the Internet as we know it today in which free communication prevails in cyberspace. The two main types of personal communication are individual email and various forms of group communication such as listservs, forums, blogs, and social sites. These have most recently been joined by new sites and services, including Myspace, Flickr, Blogs, Wikis, RSS content syndication, and folksonomies, often referred to collectively as Web 2.0. Communities form around these spaces of virtual social interaction. This is significant because community is the primary scene of human communication and personal development. It is in this context that people judge the world around them and discuss their judgments with others. Any technology that offers new possibilities for the formation of community is thus democratically significant.

But are online communities real communities, engaging their members significantly? This question has been posed forcefully by critics who claim that without face-to-face contact no serious human relationship is possible. The supposed prevalence of anti-social behavior such as “flaming” on the Internet is brought forward as evidence of its inability to support the levels of moral engagement we associate with the concept of community. These arguments are confounded by the testimony of participants in online community as well as by extensive research. For example, surveys conducted in several countries by Japanese researchers reveal that the ethical assumptions guiding Internet users resemble quite closely their everyday ethical assumptions (Nara and Iseda, 2004). Not technology but character determines behavior online. And character is precisely what community requires, i.e. the ability to commit to a group of fellow human beings. The behaviors and symbols that sustain and support the imagined unity of community are routinely reproduced on the Internet. I cannot pursue this argument further here but there is much more to say in defense of the idea of online community (Feenberg and Bakardjieva, 2004).

The essence of the community model is reciprocity. Each participant is both reader or viewer and publisher. To maintain this structure, the community model requires the continued neutrality of the network so that unprofitable or politically controversial communication will not be marginalized. It must be possible to introduce innovative designs for new forms of association without passing through bureaucratic or commercial gate keepers. The involvement of open source developers and other unpaid volunteers is essential and cannot be expected to survive a commercial take-over of cyberspace. Embedding a strict regime of intellectual property in the technology of the system would surely be incompatible with free communicative interaction. The conditions of community are both social and technical. Should community prevail, commercial, entertainment and informational applications would certainly find their place, but they could not dominate the evolution of the system with their special technical requirements. Indeed, we can expect business to adapt to the requirements of community in a process that is prefigured in the commercial takeover of certain community sites as platforms for the sale of advertising.

Commentators noted early that online communities form around a shared interest or concern. In this they differ from geographically based communities in which a far more mixed population is related by place. Is this good or bad? Disadvantaged publics can pool their forces online and have a greater impact. This has made it possible for ordinary Americans to raise huge sums of money for political candidates who might have been swamped at the polls by adversaries with the support of a few wealthy businessmen or party organizations. On the other hand, public debate involves disagreement and it is said that debate is sidetracked by the homogeneity of Internet groups. Whether this is really true is unclear but even if it is, practically no one associates only with like-minded interlocutors on the Internet. Everyone has many other contacts in which the opportunity for disagreement arises. This is not a persuasive reason to condemn the Internet and all its works.

These familiar debates overlook a more important issue. The most innovative democratic implications of the Internet are only beginning to emerge, and they have less to do with traditional politics than with new forms of agency that will redefine and enlarge the sphere of politics. What we commonly identify as politics on the Internet is

merely an instance of this broader phenomenon, a kind of social politics emerging in the myriad online communities that populate cyberspace. To understand this new politics we will need to reconsider how we think about technology once more.

Until recently, the main emphasis in discussions of technology has been on efficiency, but American philosophers of technology argue that this is insufficient. Langdon Winner, for example, describes technology as a kind of constitution insofar as it determines the framework of our lives and decides important political questions in the shape it gives our social relations as we use it (Winner, 1986: 47ff). Given its variety, technology would perhaps be more accurately compared to a code of laws that together determine social life. And like legislation, technology represents the interests and concerns of some better than others. In each case, it is possible to trace out the links between laws and machines and those they represent. If this is so, a democratic technological regime, like political democracy, is superior because it enables the broadest possible representation.

But there are also important differences between politics and technology. The idea of representation is traditionally tied to geographical locality on the presumption that those who live close together share common interests and are able to meet to discuss them. Of course there are likely to be disagreements but so long as communication is possible, conflicts can either be resolved or settled by legitimate means such as voting. The resultant consensus makes it possible for the community to feel itself represented by its representative.

Representation is the principal means of community self-assertion in modern democracies. It is through their representatives that groups pursue their interests in the political sphere. We call this exercise of power “agency,” meaning the capacity to act. Representatives in traditional politics exert agency on behalf of a community more or less under its control depending on the degree of democracy that prevails.

But in modern societies, geographical bonds are no longer the only or principal ties people share. Economic ties produce communities of interest that are widely dispersed in space. Unions, business associations, and professional organizations have had considerable success influencing the political process on behalf of these dispersed communities. But with the exception of short-lived communist and fascist experiments with corporate representation, these alternative forms of community have never achieved political legitimacy and representation in the legislative bodies of the state. Economic interests are still generally seen as private even though they organize so much of our common life in modern societies. Geography and the concerns that flow from it are still defining for the political.

Yet as we move into a more advanced phase of technological development, this rather narrow definition of politics inherited from the preindustrial past is less and less plausible. More and more aspects of social life are conditioned by commonalities among people who share a similar relation to the vast technical systems that shape most social life. Technologically advanced societies enroll their members in a wide variety of technical networks that define careers, education, leisure, medical care, communication, and life environments. These networks overlay the geographical communities and compete with them in significance in the lives of citizens.

The representation of technically mediated communities is complicated by the role of experts in the creation and operation of technical networks (Feenberg, 1995:

chap. 5). Experts represent the community constituted by a technical network in the sense that they implement some fraction of the participant interests of its members. But expertise is based on technical knowledge which, unlike the wisdom sought in political representatives, is cumulative and must be acquired through extensive training. Like technologies, technical disciplines are underdetermined and realize specific social interests in technically rational forms. These bodies of technical knowledge transmitted to successive generations of experts contain the outcome of past struggles over design. Current designs are responsive to this technical inheritance and to the agency of current participants bringing pressure to bear on those in control of technology.

In the domain of technology the enormous cost and the long time delays in generating a cadre of experts forbid abrupt and drastic changes. As new groups emerge, they must impress their concerns on the same body of experts, convince them to modify existing designs, and eventually install their concerns in the training of the next generation of experts. The participant interests of members of technically mediated communities are thus represented differently from political interests of geographically based communities.

Obtaining adequate representation was well beyond the means of almost all technically mediated populations in the days before the Internet. Only groups organized around politics in the traditional sense were also able to function effectively as technical pressure groups. The labor movement, for example, was able to impress governments with the importance of health and safety rules for industry. The movement for Gay rights was able to penetrate the health system with demands for access to experimental AIDS drugs. But most participants in technical networks went unmobilized and it appeared that some sort of technocratic order would be the outcome of further technological advance.

Already in the 1920s John Dewey foresaw the problems that would result. Dewey argued that the mobility of a modern society was destructive of traditional forms of local community. Meanwhile, the new links being forged by the advancing technical system were still inarticulate. Dewey described the dilemma as follows: "Indirect, extensive, enduring and serious consequences of conjoint and interacting behavior call a public into existence having a common interest in controlling these consequences. But the machine age has so enormously expanded, multiplied, intensified and complicated the scope of the indirect consequences, have formed such immense and consolidated unions in action, on an impersonal rather than a community basis, that the resultant public cannot identify and distinguish itself" (Dewey, 1980: 126).

Dewey hoped that the free and cosmopolitan communication made possible by modern technology would to some extent mitigate this problem and revitalize local community. But the two terms of the dilemma--large scale technical networks as the form of our social future, and local community as the only possible site of true democratic deliberation--remained fixed for him.

This has begun to change. Technical communities have begun to use the Internet to coordinate their demands for a fuller representation of participant interests. Despite discouraging developments in other domains, agency in the technical sphere is on the rise. The ease of communication on the Internet has made it possible for these new communities to organize. In the process they are shifting the tendency away from technocratic counsels toward more democratic forms of representation. These new forms of

online politics cannot replace traditional geographically based representation, but their existence does mean that activity in the public sphere can now extend to embrace technical issues formerly considered neutral and given over to experts to decide without consultation. This has had the effect of creating a social and technical environment in which agency in the traditional domain of politics has begun to recover from the passivity induced by a steady diet of broadcasting.

In conclusion, I will mention a few examples.

1. *Medicine.* Patients meet and support each other on the Internet to an unprecedented extent. In 1995 I studied an early example, a discussion forum for patients with the rare neurologic disease ALS (Lou Gehrig's Disease). The patients exchanged social support, lore about living with the disease, and information about medical experimentation. This new type of patient organization defied standard assumptions about the sick role. Instead of waiting in isolation for individual help from the medical profession, the patients worked together to further their interests as patients. They eventually brought pressure to bear on the ALS Society, their voluntary health agency, to demand larger budgets and changed policies from the National Institutes of Health. Prior to the creation of the ALS forum, the ALS Society represented their interests to the medical community without any clear mandate. Today similar patient forums proliferate on the Internet and create a very different social environment for medicine (Feenberg, et al.,1996).

2. *Music sharing.* Everyone is familiar with the emergence of networks for the sharing of MP3s. This is a response to the conservatism of the established record companies. Between an \$18 album with one good song and a free or 99 cent download of that same song, there is no competition. The huge overhead of top heavy music companies forms an obstacle to adaptation they are only gradually overcoming. But the issue here is not merely economic. Music has always been an important social activity, mobilizing and gathering the community for pleasure. The invention of individual listening is recent and the packaging of music as a commodity even more recent. The celebrity culture and cult that goes along with these innovations has an unhealthy aspect. A very different musical world with far more space for more musicians and their performances appears likely to emerge in the new situation. So far, online music sharing appears to contribute to a restoration of music as a social activity, and a return to its historic role in social life.

3. *Software.* Software users form an invisible community that has until recently been helpless before gigantic firms such as Microsoft. The willingness of such firms to respond to users' demands is severely limited. But the software business is young. In the early days of the IBM mainframe, users rather than commercial suppliers developed software. Habits of free exchange acquired then gradually merged with an ideological movement for free and open source software initiated by Richard Stallman in 1985. The rapid development of the field thereafter has had a huge impact on the Internet. Each software project gathers an online community that tests the programs and suggests or actually codes improvements. Software users and producers are no longer separated by the barrier of commercial enterprise but like readers and writers in other types of online forums, can exchange places and engage reciprocally with each other.

4. *Libraries.* Libraries have struggled to redefine their role as information providers in the face of competition from the Internet. As part of this process, academic li-

libraries are undergoing an interesting evolution. Aggressive companies have gone too far in commercializing scholarly publication. Institutional subscriptions for medical journals now cost tens of thousands of dollars a year. The presidents of large journal publishing firms such as Kluwer in Holland earn as much as one million dollars a year, a princely sum extracted from royalties and subscriptions. In response libraries have begun to cross the line between stocking and publishing information. They now support the creation of open access online journals in an effort to fulfill their traditional functions as non-commercial brokers of academic information. Scholarly communities that formerly depended on the costly services of publishers can now organize themselves on their own with the help of libraries (Willinsky, 2006).

5. *Video games.* The video game industry is now larger than Hollywood and engages millions of subscribers in online multiplayer games. The players' gaming activities are of course structured by the game itself, but online communities organize them in informal relationships that the industry does not control. These online forums are venues for various unexpected appropriations of the game environment. For example, players auction items acquired in games for real money. Hackers have modified games and the modified versions have occasionally become popular. Legal issues arise in such cases since players usually have to agree to extremely restrictive policies when they subscribe. So far companies have generally responded to violations of these restrictions by protesting at first, but in most cases they soon ignore the violators or modify their policies to accommodate them. The online game world thus supports an unusual degree of interaction between customers and suppliers, rather different from what we have come to expect from television and film (Grimes, 2006).

6. *Online education.* The invention of online education goes back to the early 1980s. Only online discussion was possible then and so a pedagogy developed based on dialogue and collaboration. Later, university administrations were attracted by the still unfulfilled promise of automated learning. The collapse of that project has left a confusing situation in which online education means very different things to different people. Millions of students use online sites and forums today. Many of them are adult learners who would not be able to study in a traditional university setting. The reciprocal communicative potential of online education represents a great improvement over the one way model of traditional distance learning. For other students, online education offers opportunities for discussion as a supplement to lectures held in a conventional classroom setting. This too seems an improvement over the traditional lecture course. Nevertheless, there is a risk that because it is a new and poorly understood technology, online education will provide a cover for the reduction of education to the mechanical delivery of materials. The struggle over the future of the Internet is paralleled by this controversy over how best to employ it in education (Hamilton and Feenberg, 2005).

I will conclude with these examples. They suggest a significant change in the way we live. The return of agency in these various domains may appear non-political but what is democracy if not the activity of individuals in determining their own collective life? And to the extent that so much of life is now mediated by technology, more and more of it becomes available for these new forms of community control. Let's be clear: This is not a revolution and its effects are still small enough to be ignored. But give it ten more years and we will see if I am right to argue that the Internet has made a difference.

That is, if the community model is able to sustain itself. This is the ultimate challenge for online community: to preserve the conditions of community on the Internet. A democratic Internet? That depends on the capacity of ordinary users to defend its democratic potential in the coming years.

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