# New Technologies and Alienation: Some Critical Reflections[1]

## Douglas Kellner
## (http://www.gseis.ucla.edu/faculty/kellner/)

"Human beings make their own history, but not under circumstances of their own choosing."
Karl Marx

"They who control the Microscopick, control the World."
Thomas Pynchon

The developing countries are currently undergoing a perhaps unprecedented technological revolution that has given new credence and life to the concept of alienation after a period of relative decline in which Marxian, existentialist, and other modern discourses were replaced with postmodern perspectives skeptical or critical of the concept of alienation. In this paper, I want to suggest that emergent information and communication technologies and the restructuring of global capitalism require us to rethink the problematics of technology and alienation. If it is true that we are undergoing a Great Transformation, one of the epochal shifts within the history of capitalism, that the new technologies are taking us into a novel field of cultural experience and that the very nature of human identity and social relations are changing, then obviously we need to develop fresh theories to analyze these changes and politics to respond to them.[2]

For many, the changes underway on a global scale are as thorough-going and dramatic as the shift from the stage of market and competitive and laissez-faire capitalism theorized by Marx to the stage of state monopoly capitalism critically analyzed by the Frankfurt School in the 1930s.[3] Theorizing this ongoing and epic transformation requires critical social theory to engage anew the relations between the economy, state, culture industry, science and technology, social institutions and everyday life as radically as the Frankfurt School revised classical Marxism in the 1930s. In this context, talking about technology and alienation is not just an academic affair, the latest twist in the discourse of alienation or of technology, but rather concerns the fate of the human being in the contemporary world and thus requires serious reflection and discussion whether the changes in society, culture, and human existence are or are not beneficial, and what we can do to promote a positive outcome and prevent a harmful one. But before we can talk intelligently about the emergent technologies and their impact on human and social life, we need to reject right from the beginning the two dominant ways of talking about contemporary technologies and need to develop a critical theory of technology to adequately address the issue of technology and alienation.

## Technophobia vs. Technophilia

In studying the exploding array of discourses which characterize the new technologies, I am bemused by the extent to which they expose either a technophilic discourse which presents new technologies as our salvation, that will solve all our problems, or they embody a technophobic discourse that sees technology as our damnation, demonizing it as the major source of problems of

the present age. It appears that similarly one-sided and contrasting discourses greeted the introduction of other new technologies this century, often hysterically. To some extent, this was historically the case with the telegraph, film, radio, TV, and now computers. Film, for instance, was celebrated by some of its early theorists as providing new documentary depiction of reality, even redemption of reality, generating a challenging art form and novel modes of mass education and entertainment. But film was also demonized from the beginning for promoting sexual promiscuity, juvenile delinquency and crime, violence, and copious other forms of immorality. Its demonization led in the United States to a Production Code that rigorously regulated the content of Hollywood film from 1934 until the 1950s and 1960s -- no open mouthed kissing, crime could not pay, no drug use or attacks on religion were allowed, and a censorship office rigorously surveyed all films to make sure that no subversive or illicit content emerged (Kellner 1995).

Similar extreme hopes and fears were projected onto radio, television, and now computers. It seems that whenever there are new technologies, people project all sorts of fantasies, fears, hopes, and dreams onto them, and I believe that this is now happening with computers and evolving multimedia technologies. It is indeed striking that if one looks at the literature on information and communication technologies (ICTs) -- and especially computers – dominant discourses are either highly celebratory and technophilic, or sharply derogatory and technophobic. For technophilia, one can open any issue of <u>Wired</u>, or popular magazines like <u>Newsweek</u>, one can read Bill Gates' book <u>The Road Ahead</u> (1995), or peruse some of the academic boosters of new technologies like Nichols Negroponte, Sandy Stone, or Sherry Turkle. These technology promoters are sometimes referred to as digerati: intellectuals who hype new technologies and reject critique for advocacy and celebration. They include Alvin Toffler, George Gilder, David Gelernter, (incidentally, one of the Unabomber's victims), and countless wannabees who write for the media, specialist journals, and other publications who want to get on the digital bandwagon and extract whatever joys and cultural capital it will yield.

Mainstream media too took up the cause of championing ICTs with major newspapers like the <u>New York Times</u> and the <u>Los Angeles Times</u> devoting entire sections to touting the proliferating gadgets and practices of the new cyberculture. Business sections of print publications hyped "the new economy" and magazines like <u>The Red Herring</u> and <u>Fast Company</u> puffed up every "new new thing" involved with the technological "revolution" and the spectacularly proliferating cyberculture. The moment of the cyberculture arrived with the media, politicians, technophilacs of all strips, and our academic colleagues celebrating ICTs as the key to the present and hope of the future.

Certain advocates of postmodern theory and cultural studies have also been celebrating a "technological sublime" which postulates a radically novel realm of experience and forms of culture and identity which break with allegedly moribund modern forms and practices. Following Lyotard's equation of the postmodern aesthetic with the sublime (as opposed to the modern promotion of the beautiful), many postmodern and other theorists have viewed technology itself as constituting a realm of the sublime that is revolutionizing art, everyday life, and human subjectivity, providing exciting aesthetic forms and higher dimensions to human experience (i.e. computer, cyberculture, virtual reality, and so on). Similar celebrations of the technoculture abound within the field of cultural studies and the emerging field of cyberstudies, which often assume an uncritical and technophilic posture toward ICTs.

Technophilic politicians include Al Gore and Newt Gingrich in the United States and Tony

Blair and his New Labor cohort in England. These promoters of the information society promise more jobs, exciting economic opportunities, more leisure, better education, enhanced democracy, a bountiful harvest of information and entertainment, and new prosperity in a computopia that would make Adam Smith proud. With powerful economic interests behind the emergent technologies, one expects the technological revolution to be hyped. And obviously there is academic capital to be gained through boosting ICTs, so it is not surprising that some of our colleagues are championing these technologies, often in an uncritical fashion. What is perhaps more surprising, however, is the extent of wholly negative discourses on computers and information technologies. In the past years, a large number of books on computers, the Internet, and cyberspace have appeared by a wide range of writers whose discourse is strikingly technophobic.

One strand of this vast technophobic literature currently aimed at computers goes back to the 1960s and earlier criticism of technology by Theodor Rozack, Charles Reich, Neil Postman, Jerry Mander, and other longtime critics of media culture and technology, who now focus their anti-technology jeremiads at computers. The same arguments these writers have previously used against technology in general, they are now deploying against computers, so there is a recycling of earlier anti-technology polemics in the contemporary technophobic discourses on ICTs. This perspective equates technology with dehumanization and alienation from other people, the environment, and the "real world," positing users of ICTs as lost in cyberspace.

Similar critiques have emerged from the philosophical community, including Albert Borgmann's <u>Across the Postmodern Divide</u> (1994) which claims that information and communication technologies are taking us into the sphere of hyperreality, a term he borrows from Baudrillard, and that we are losing touch with our bodies, with nature, with other people and with focal things and practices -- an argument developed in popular form by Mark Slouka (1995). Lorenzo Simpson's book on technology and modernity (1994) provides another technophobic polemic against technology for alienating and dehumanizing us. These liberal and humanist critiques of technology follow Heidegger, Weber, and the Frankfurt School in perceiving modern technology primarily as instruments of domination and as threatening individual freedom, autonomy, and creativity. From this optic, the new technologies are imprisoning us in a technological cage (Heidegger's "<u>Gestell</u>") and reducing human life to mere instrumentality, while alienating us from nature, other people, possibilities of self-development, and being itself.

Clifford Stoll's <u>Silicon Snake Oil: Second Thoughts on the Information Highway</u> (1995) provides a popular technophobic missives which comprises a fascinating contrast with Bill Gates' <u>The Road Ahead</u> (1995), attacking everything that Gates affirms. They provide positive-negative mirror images of each other, both of which are highly one-sided and demonstrate the need for dialectical perspectives. Both also have problematical conceptualizations of technology, seeing it primarily as instruments that can be used positively or negatively by groups or individuals. In other words, both have rather narrow instrumentalist and individualist conceptions of technology rather than seeing it as central to the restructuring of global capitalism, or interpreting technology as a major constitutive force of contemporary social reality which provides an entire social and cultural environment that has immense impact on human activity, relations, and identity.

Extreme postmodern technophobic critiques are found in Arthur Kroker and Michael Weinstein who in their book <u>Data Crash</u> (1995) suggest that contemporary culture has crashed, imploded into hyperreality, and that people have lost touch with reality altogether, and are ruled by

a new virtual class. On this view, individuals have entered a new stage of virtual capitalism, which might come as a great surprise to those still laboring in sweatshops or factories, or to those in the expanding service sector. Postmodern technophobia often derives from Baudrillard, who describes the end of the real and the "catastrophe of modernity" in the new worlds of simulacra and hyper and virtual reality (1993, 1996).

But perhaps the most famous technophobe is the Unabomber whose Manifesto is a compendium of anti-technological, technophobic discourses, condemning industrial-technological society in its totality (Kaczynski 1995). The Manifesto echoes countercultural writers and theorists like Marcuse, Ellul, and other critics of the technological society who condemned its dehumanizing features and its tendencies toward massification, robbing individuals of power and freedom. Putting his ideas into practice, the Unabomber sent bombs to representatives of the industrial-economic order, maiming and killing many victims, before being apprehended and tried in 1997-1998.

Some comrades on the Left also enrolled in the ranks of the anti-information technology forces, including Kevin Robins and Frank Webster who advocate a neo-Luddism (1986 and 2000). Leftist critics often fail to note any progressive aspects to the emergent technologies which they interpret primarily as capitalist tools, used by capital to ensure its hegemony and to alternately dominate and overpower or seduce the working class into virtual dreams and technofetishism. Robins and Webster see the ICTs as ushering in an age of "Slaves without Athens," downplaying the democratizing potential of the technologies. Thus, while Robins and Webster are aware of the magnitude of the restructuring of capital and of the importance of technologies in this restructuring, they primarily maintain a gloomy pessimism, believing that ICTs are simply tools of capital hegemony and not also forces of resistance and democratization.

Likewise, David Noble has been publishing sharp and historically-grounded critiques of technology for decades (see 1977, 1984, 1994, 1995, and 1997), and he has come out in full force against computer and information technologies. In an often-published critique of 1990s University initiatives to require faculty to create Web-sites for their courses, Noble insists that this is a form of unpaid labor that does not really promote a quality education (1998). In his 1997 jeremiad The Republic of Technology, Noble argues that from the beginning, major scientists, inventors, and ideologues of science and technology perceived them as vehicles of salvation, of redemption of fallen humans who would be restored to a godlike state through the marvels of technoscience, and thus disregarded human needs and limitations.

It is indeed curious that technology has become for many a religion and center of ultimate concern for growing numbers in the technoculture, while at the same time it is a focus of technophobic attack upon which any number of social anxieties are projected. Responding to the one-sidedness of dominant perspectives, a new discourse of "technorealism" appeared in 1998 in response to much media hoopla (see http://World Wide Web.technorealism.org). But, like much of the digerati discourse of the tech.boom period, its' advocates lack adequate theorizing of the emergent technologies and robust critique, as they for the most part fail to theorize the technologies within the framework of their imbrication of a restructuring of global capitalism and in addition do not articulate an adequate standpoint of critique.

For a Critical Theory of Technology

Against one-sided technophilic or technophobic approaches, I advocate a critical theory of technology intended to sort out positive and negative features, the upside and downside, the benefits and the losses in the development and trajectory of the new technologiesm as well as contradictions and ambiguities.[4] It is necessary to counter promises of technological utopia, that computers will solve current problems, produce jobs for everyone, generate a wealth of information, entertainment, and education, connect everyone, and overcome boundaries of gender, race, class. But a critical theory also needs to counter technological dystopia and claims that computers are fundamentally vehicles of alienation, or mere tools of capital, the state, and domination.

Both one-sided approaches reveal the need for a dialectical theory a la Hegel and Marx that plays off extremes against each other to generate a more inclusive position, indicating how technology can be used as instruments of domination and emancipation, as tools of both dominant societal powers and of individuals struggling for democratization, education, and empowerment. A critical theory of technology requires a substantive vision of what technology is, what it does and what it could do, as well as a normative perspective that delineates positive and negative uses, as well as ambiguities. The critical theory of the Frankfurt School, which I am drawing upon here, criticizes existing institutions, social relations, and phenomena from a normative standpoint through which existing realities can be judged deficient and oppressive.[5] I suggest that those forms and uses of technology that enhance positive values such as democracy, community, freedom, self-development, and the like should be deemed life-enhancing and meritorious, while those forms and uses of technology which promote domination and oppression while undermining positive values should be criticized as blameworthy. Of course, often one cannot make such a clear distinction, there can be unintended consequences of introducing new technologies, and technologies are often highly ambiguous and contradictory, combining positive and negative functions and effects.

Moreover, societies and technologies evolve over time, so both normative standards and evaluative analyses will change as societies develop and new technologies appear and evolve. Hence, there are two forms of essentializing technology which deny its historical and social origins that a critical theory of technology should reject. An extremely common instrumentalist view understands technology as a neutral instrument that human beings use for a variety of purposes. Habermas, for instance, follows the German philosopher Arnold Gehlen in viewing technology and instrumental action as identical, as anthropological constants in which humans use technology to dominate nature (1970: 87). Yet there are different versions of this anthropological-essentialist position. In one extravagant and uncritical version of this position, technology is interpreted as an extension of the human being and technological environments are perceived as natural products of human evolution (McLuhan 1964). A less metaphysical version of the instrumentalist position simply posits technology as a neutral instrument used by humans for human purposes.

This latter position is held by social scientists who view technology as socially constructed, as dependent on specific social structures and cultural values, thus covering over the tremendous force and power of technology in the contemporary era. Such social constructivist theories separate analysis of technology from theories of society and engage in empirical analysis of specific technologies, abandoning philosophy of technology which conceptualizes it as a key constituent of the contemporary world and attempts to articulate and critically engage its defining features and major effects. Likewise, dominant currents in social philosophy and the mainstream of academic philosophy also neglect philosophy of technology, displacing the problematic to a marginalized

subdiscipline.[6]

There is, however, a more technophobic version of the essentialist view that perceives technology as intrinsically opposed to the human, which interprets instrumentality as a threat to human purposes, norms, and values. Many contemporary philosophical critiques of technology take this position and operate with highly dualistic and usually ontologized categorical distinctions between things such as technique and being (Heidegger), technical action and social interaction (Habermas), devices versus focal things and practices (Borgmann), and instrumentality and meaning (Simpson). In these theories, the former term is devalued as modes of technological domination and alienation, whereas the latter is valorized as the authentic sphere of human meaning and value. This mode of critique thus negatively ontologizes technology and excludes it a priori from the essential forms of human being, as if technology were anti-human and opposed to human values and purposes. Such approaches separate technology from culture and society, and reify a notion of technical or instrumental action in which all action that involves technical imperatives follows a logic of things, of instrumentality, abstracted from human purposes and meaning. They therefore fail to note how technology itself is subject to human purposes, can be constructed or reconstructed in line with human projects and values, and can thus contribute to human development.[7]

Major currents in the philosophy of technology thus essentialize technology, decontextualize it, and abstract it from culture, social practices, and the construction of human projects, and thus fail to grasp its social and historical embeddness. Such essentialist and instrumentalist conceptions fail to perceive how technology itself changes, develops, and is socially constructed and reconstructed, viewing it as essentially instrumental, objectifying, and domineering Moreover, instrumentalist views of technology as neutral are close in some ways to this essentialist view, although most philosophical essentialist discourse is negative, while some forms of instrumentalist discourse are positive, or merely descriptive. Such views, however, fail to articulate the extent to which specific societal biases, interests, and ideologies go into the very construction of technology and that therefore technology requires a historically specific mode of critique and reconstruction.

Both essentialist and instrumentalist conceptions of technology should thus be distinguished from a critical theory of technology that regards technology as socially constructed, embodying historically specific social biases and values, that criticizes distinctive technologies and their uses in concrete socio-historical contexts, that promotes the reconstruction and refunctioning of technology to serve positive values like democracy or human development, and that are ecologically sensitive. Technology can either be an instrument of domination and destruction, or creative and life-enhancing depending on the technology in question, its specific uses in particular contexts, and the values and goals that are being pursued in particular situations. For example, broadcasting can be a tool of manipulative propaganda and narcotizing entertainment, or of education and genuine political debate. Critically analyzing reactionary television programs in the classroom is very different from viewing them home alone. And computers can be used either for programming nuclear weapons and corporate surveillance of workers, or as vehicles of lively political discussion and educational research.

Yet it should also be noted that technologies are often highly ambiguous, that their positive and negative aspects are often interconnected, and that it is thus often extremely difficult to appraise and evaluate specific technologies, let alone technology in general. The ambiguity in part derives

from the centrality of technology in human life, its deep embeddedness in every integral dimension of human life ranging from the economy, to the polity, to social and everyday life, and culture and human subjectivity itself. Indeed, as Andrew Feenberg argues (1999), the social constructivist view often fails to note the extent to which technology is deeply involved with what human beings are, and that humans are products of their technologies just as technologies are products of human beings in specific social situations. From this perspective, after centuries of using technologies, human beings are technical beings, technologies are extensions of human faculties which in turn come to shape human thought, behavior, and interaction. Technology is pivotally embedded in the human adventure from the start, and is thus bound up with the nature of the very beings that we are. For this reason, social constructivist conceptions of technology miss the depth and pathos of technology, its centrality in human experience, and the extent to which it influences the organization of human society and culture in all known historical periods.

Social constructivist views thus tend to have too narrow and instrumentalist a conception of technology and downplay its central importance in the construction of modernity and, for some, the transition into postmodernity (Baudrillard 1993; Jameson 1991; and Best and Kellner 2001). A critical theory of technology, by contrast, develops what Feenberg (1999) calls a "substantive" theory of technology, that theorizes its centrality in contemporary society, without, however, falling into either technophobia or technophilia, as do most instrumentalize and essentialist theories of technology.

Yet in one sense, technology is socially constructed, specific societal biases and interests are encoded in technology, and the social relations in which technologies are produced and used will help determine their nature and uses. Hence, a critical theory of technology is concerned to articulate the potentials of specific technologies, to develop a substantive vision of the role of technologies in human life, and to project ways that technologies can serve human self-development, democratic values, and the creation of a more cooperative and ecologically viable social organization. A critical theory of technology in the workplace, for example, should articulate dialectical perspectives that can distinguish between technologies that further life-enhancing and fulfilling work and social relations, opposed to technologies that create a less creative, democratic, and more authoritarian social order, or products that are destructive of human beings and nature.

A critical theory of technology will critique the oppressive and authoritarian forms and uses of technology and sketch ways in which the restructuring and refunctioning of technology can promote progressive social change and the creation of the good life and the good society. Thus, a critical theory of technology is driven by a philosophical vision of normative conceptions of ethics, aesthetics, and politics, judging technology according to normative criteria, and regarding the construction and reconstruction of technology as fundamental to human experience. Overcoming one-sided conceptions of technology, a critical theory of technology recognizes in the mode of historicism the social constructedness of technology, but interprets it as fundamental to human life and history, and thus develops a substantive philosophy of technology adequate to its importance and centrality in human life.

Calling for dialectical normative appraisal of its positive and negative aspects is not to reject radical critiques of technology, or of specific technologies, out of hand, for often the critiques are valid and important. All technology has its biases, its built-in interests, and its predispositions to certain uses. Some technologies are inherently harmful and destructive such as nuclear weapons or

nuclear energy which contain the potential for catastrophe devastation. Other technologies can be used for good or evil, depending on who is using them, how, and to what purposes. Television and film can be great instruments of education and enlightenment, or of manipulation and debasement. Computers can be used to promote progressive or regressive ideas, and emancipatory or oppressive social forces and interests.

It is a mistake, however, to dismiss technology per se as merely a mode of domination and oppression, though it may be so in many cases and threaten positive values. Technologies, like the computer, were initially used and developed by big government, corporations, and the military as centralized instruments of social control and power and were, with much justice, criticized in the 1960s for contributing to state and corporate institutional domination, the dehumanizing and disempowerment of humans, and the proliferation of destructive and life-threatening bureaucratic systems and weapons of mass destruction. Yet in the 1980s and 1990s, computers were recreated, made "personal," and are significantly different in their constitution and effects than their earlier incarnations (Turkle 1995).

A critical theory of technology thus develops a historically specific and normative critique of technology. It not only attacks life-negating, oppressive, and destructive aspects of technology, but valorizes empowering, democratizing and ecologically positive forms and uses. Crucially, it attempts to discover and invent ways that technology can serve the interests of human emancipation and well-being, while aspiring to delineate ways that technology can be used to create a better world. A critical theory of technology may deploy strategies of immanent critique, taking existing norms and values as the standpoint of critique, but may wish to develop stronger normative conceptions of democracy, freedom, and the good society than notions currently in play and should carry out critiques of restricted and ideological notions of democracy, empowerment, and freedom being promoted by the avatars of new computer and multimedia technologies.

In Dialectic of Enlightenment, however, Horkheimer and Adorno (1972) argued that Enlightenment values had turned into their opposite. For Adorno and Horkheimer, rationality, democracy, culture, and other bourgeois ideals had shifted from serving as a form of emancipation and progress to that of oppression and domination. In their view, science, technology, industry, and instrumental rationality had created a machinery of war, death camps, and nuclear annihilation; bourgeois democracy voted in fascist regimes; and culture, supposed to be emancipatory, was built-into totalitarian systems of social control and oppression. Henceforth, Adorno and Horkheimer attempted to develop innovative strategies of critique and opposition to the emergent forms of technological domination and power. The first generation Frankfurt School, however, never was able to create adequate theories of democracy, a task taken up by Habermas and his followers and other of us in the third generation Frankfurt School (see Kellner 1989).

A critical theory of technology may also deploy strategies of immanent critique, taking existing norms and values as the standpoint of critique. Yet emancipatory theory may wish to develop stronger conceptions of democracy, freedom, and the good society than notions currently in play and carry out critiques of restricted and ideological notions of democracy, empowerment, and freedom being promoted by the avatars of computer and multimedia technologies. This, of course, is an immense task and my present reflections can only contribute to making a few observations on developing some criteria to indicate ways that ICTs can be said either to produce forms of alienation or contribute to disalienation and overcoming social forms and activities often labelled as

"alienation."

Alienation and Technology

      As my discussion of the technophobic discourses indicates, many critics have argued that ICTs have distinctive alienating effects and are creating novel forms of alienation. Others maintain that the very notion of alienation is bound up with modernity and with essentialist forms of theory and that the very discourse of alienation should be discarded. I should confess here that I never bought the fashionable poststructuralist/postmodern argument that alienation is connected with essentialism or mystification per se, although it can be in some discourses. Yet, for the concept of alienation to make sense one must specify what one is being alienated from, how this is happening, what, if anything, is wrong with this, and how one might overcome what is described as alienation.

      While idealist conceptions of alienation assume something like an invariable human essence from which one is alienated, Marx arguably develops a more concrete concept of alienation in his account of the alienation of labor that is much less metaphysical than idealist-humanist concepts. Marx presents in his early writings a normative concept of the human being as many-sided, creative, and at once individual and social (1975). The young Marx began seriously studying economics in Paris in 1843-1844, and after an encounter with Engels in Paris in 1844, he intensified his economic studies. Convinced that the rise of capitalism was the key to modern society and history, Marx sketched out his analysis of capitalism in his Economic and Philosophical Manuscripts of 1844, which present his initial perspectives on modern societies in terms of a vision of the alienation of labor under capitalism and its projected emancipation under socialism (1975: 231ff).[8]

      For Marx, labor under capitalism was alienated because one was estranged from one's potentials as a many-sided being, as people were forced to engage in specialized and one-sided labor. Moreover, individuals were alienated from their human potentialities of creativity, self-realization through labor, and the development of one's full range of human potentials since labor under capitalism was external, directed from the outside, coercive, and necessary, as one was forced to work to survive. Further, work was fragmented and routinized and not free and inventive. Finally, individuals under capitalism were alienated from other people in that labor was competitive and not cooperative, society was divided into masters and slaves, and thus a system of domination and exploitation prevented human, social and self-realizing labor.

      It is important to note that for Marx alienated labor was largely a function of capitalist social relations and not technology and could be overcome with the transition from capitalism to socialism where workers would own and control the means of production; organize labor cooperatively and democratically; and engage in many-sided activity rather than the one-sided activity of capitalism. In his most radical vision of an emancipated society, Marx envisaged a realm of freedom made possible by the developments of modern technology and industry. In the Grundrisse, he sketched a theory of a possible rupture between capitalist and post-capitalist societies that would be as radical as those between pre-capitalist and capitalist ones. On his account, capital generates factories, machine production, and eventually an automatic system of machinery (1978: 278ff.).

      In his famous analysis of automation, Marx sketches out an audacious vision of the development of a fully automated system of production under capitalism that brings it to an end and produces the basis for an entirely different social system. In Marx's vision, the "accumulation of

knowledge and of skill, of the general productive forces of the social brain" are absorbed into capital and produce machinery which "develops with the accumulation of society's science, of the productive force generally" (1978: 280). As machinery and automation develops, the worker becomes more and more superfluous, in contrast to the growing power of machines and big industry. On the other hand, machines free the worker from arduous and backbreaking labor. In this situation: "Labour no longer appears so much to be included within the production process; rather, the human being comes to relate more as watchman and regulator to the production process itself.... He steps to the side of the production process instead of being its chief actor" (1978: 284).

On the other hand, Marx saw that technology both provided capital with powerful forces of domination, exploitation, and the realization of profit, and workers with instruments that could be used against capital and to organize labor in accord with interests of democracy, justice, and human self-development. Technology for Marx was thus complex and his analysis of alienation always focused on those features that could be overcome and eliminated in a non-alienated society. While Marx offers a precise and concrete account of the alienation of labor and its overcoming, in the discussions of emergent technologies and alienation, such careful distinctions or concreteness are rarely attained. In the claims, for example, that in cyberspace, we are alienated from other people, our bodies, nature, and "real life" (RL), or that we are lost in hyper- or virtual reality (VR) and disconnected from the real, there is rarely any detailed analysis or specification of what one is alienated from, why this is bad, and how such alienation should be overcome. Or, the accounts given are not particularly persuasive.

Take the claim that we are alienated from "real life," other people, or the body in cyberspace. To begin, I would resist the extreme binary distinctions between reality and hyperreality, as if they were two distinct zones, as if, as Sherry Turkle seems to imply (1995), there is a great divide between RL and VL. For Turkle and other digerati, virtual life is positive, enabling individuals to experiment with new identities, to enter into novel types of social relations, and to form virtual communities, while for technophobes like Borgmann or Stoll, cyberlife is inferior to real life and cyberspace is depicted as a realm of alienation. Both extremes, however create an illicit distinction between everyday life and cyberlife, with technophiles celebrating the virtual life as liberating and exciting while technophobes claim it is derivative, secondary, banal, harmful, and alienating.

But I would argue against either technophobia or technophilia and would see virtual life as a dimension of, as part of real life, that may or may not be empowering or alienating depending on its nature, effects, and contexts. Indeed, for the concept of alienation to have force the discourse should be elaborated and specified. The term "alienation" initially derived from the Roman alienatio which signified to "transfer," a sense included in the early economic sense of "to alienate" as to sell or transfer ownership. Analogically, this conception could be operative in discussions of technology, alienation, and labor, or other forms of activity, in which technology performs activities once performed by humans. But, as in Marx's analysis in the Grundrisse, it might be a positive development to let technology execute socially necessary labor that machines could accomplish, thus freeing creative life-activity for individuals and social groups.

But Marxian, existentialist, and other philosophically-grounded conceptions of alienation also connotated separation, as when in alienated activity one is separated from control over the means of activity as in alienated labor under capitalism. The conception of alienated labor also often connotated surrender and relinquishment, as when one gives up control or power to alienating

forces; and thus the strong concept of alienation often involves a loss of something fundamental and important to human life. Hence, with Marx, one's fundamental life-activity, one's very labor power, was surrendered to the capitalist. On Marx's view, in labor under capitalism, workers lost their potential for free and creative activity, and labor was thus subjugated, exploited, and alienated from the potential for free self-valorizing and creative activity. Moreover, for Marx, individuals under capitalism were trapped in a mode of life that was organized around labor and required most of an individual's life to be centered on labor instead of many-sided creative activities that were in Marx's view necessary for full self-realization and development.

I would argue that such a strong conception of alienation is not necessarily operative in activities with technologies in cyberspace, that such activity may be empowering, as one finds valuable research material, engages in relatively non-constrained dialogue and discussion, or enjoys harmless play, banter, and surfing. Furthermore, it might be positive to be "alienated" in the weaker sociological sense from other people and one's environment.[9] For instance, a teenage kid spending 10 hours a day in cyberspace might be better off than participating in banal or destructive social activities in one's "real life," such as gangs, drugs, or just wasting time. Someone who has difficulty in connecting socially with those around oneself may be able to make contact with people in cyberspace who share their interests or situation, which might help with an individual's self-esteem or lead to better contacts and social relations in the real world. For example, there are accounts of gay teens who found support on-line, that helped them accept their homosexuality, and many other people who had self-esteem problems because of a perceived difference or oddity found support in communities of like-minded people.

I do not, however, want to romanticize the net and computer culture. Computerized labor is highly alienating both for those forced to produce the technologies in the system of production and for those laboring in some workplaces that use technologies as modes of surveillance and domination. Obviously, in certain relations of production activity in cyberspace is not free or creative, but is controlled by the workplace and capital. Moreover, no doubt, many youth are seriously alienated from school, peer social groups, and the world around them and became lost in cyberspace. Obviously, significant amounts of concrete bodily interaction with other people is necessary to creative self-development and fulfillment and it might be harmful to individual development to spend too much time in cyberspace and not relating to other people. On the other hand, there is no convincing evidence so far that there is a correlation between immoderate time in cyberspace and poor social relations within one's immediate environment, or negative psychological consequences for the individual. Although a study was released in August 1998 that claimed to make a correlation between increased time spent in cyberspace on the Internet and increased feelings of depression and loneliness, this study was soon subjected to sharp critique and its findings were put into question.[10]

Likewise, claims that we are alienated from our body in cyberspace, strike me as unconvincing, as my body includes my hands, my eyes, and other senses that are fully active in computer-mediated activity. The assertion that the body does not count in cyberspace, that it is devalued and that we are alienated from it, perhaps derives from William Gibson's distinction between "meatlife" and cyberlife and his cybercowboys' view that the body is just "meat" and that real action is out there in cyberspace (1984). Yet while many of Gibson's insights are prescient, his denigration of the body as "meat" is problematic. As I write these reflections, or participate in

cyberspace discussions, e-mail, or surfing the web, my fingers are rapidly pounding the keys, my eyes, and my body are active and participatory in the experience; Web sites increasingly contain images, graphics, and sounds and thus there is now an aesthetic dimension to the Internet experience.

I'm going to pass over cybersex in this discussion since I'm inadequately experienced in this domain, although I have skimmed some articles and books on the topic, but from what one reads people have bodily sexual experiences in computer-mediated interaction, as they do in phone sex. Of course, one could argue that this is an alienation of sexuality, a form of alienated sex, and if one is against masturbation and has a certain normative and probably heterosexual conception of what sex should be, the argument for the alienation of the body in cybersex probably has some force. But without such assumptions about "normal" sexuality, the argument linking cybersex and alienation is none too compelling. On the other hand, clearly predatory pedophilia is highly objectionable and there are by now many cases and much discussion of the dangers of sexual predators in cyberspace. There is a general consensus that such activity is wrong and laws and law enforcement agencies are correctly prosecuting such behavior.

In any case, and this is the philosophical point, to make strong claims about alienation and technology, one must specify exactly how one is being alienated, what is wrong with this, and what should be done about it, rather than condemning cyberspace or ICTs per se as a domain of alienation. On the whole, therefore, in regard to assertions concerning alienation in cyberspace, I would argue that arguments that one is alienated from other people, one's body, nature, and the real world all have problematic metaphysical assumptions, or are not adequately specified, and thus are not convincing.

Moreover, although it seems plausible that alienation of sorts can occur if one is too heavily engaged in cyberspace, this is also true of individuals excessively engaged in watching television, reading books, playing sports, or any obsessive activity. And while its true that computers and new technologies are major fetish objects of our era, they are also potentially democratizing tools that can be used to empower individuals and groups traditionally subordinate and oppressed and can promote positive values such as democracy, justice, and equality. For example, while new technologies might be forces of further alienation and inequalities in the political sphere, they can also be empowering, democratizing and thus disalienating (see Kellner 1995, 1997, and 1998; and Best and Kellner 2001). Indeed, computers are a potentially democratic technology. While broadcast communication tends to be one-way and unidirectional,[11] computer communication is bi- or omni-directional. Where TV-watching is often passive, computer involvement can be interactive and participatory. Individuals can use computers to send e-mail to communicate with other individuals, or can directly communicate via modems which use the telephone to link individuals with each other in interactive networks. Modems can tap into community bulletin boards, Web-sites, computer conference sites, or chat rooms, that make possible alternative forms of interactive public information and communication.

Thus, the Internet makes possible becoming a producer as well as consumer, an active participant in the production of culture as well as a passive receiver of media messages. Once one gains a minimal degree of computer literacy, one can post messages to Web-sites, participate in chat-rooms or list-serve discussions, and even create your own Web-sites and blogs.[12] This technology makes possible materialization on a vast scale of Walter Benjamin's dream of "The Artist as Producer," where artists, activists, and other can participant in bringing new cultural forms and

intervening in the reconstruction of a mode of cultural production, as well as sending out alternative messages and engaging in political debate, organization, and struggle. It also realizes Bertolt Brecht's vision in his essay on radio theory that anticipated the Internet, which has helped realize his call for reconstructing the apparatus of broadcasting from one-way transmission to a more interactive form of two-way, or multiple communication, a form first realized in CB radio and then electronically-mediated computer interaction.[13]

The Internet also makes possible the revitalization of democracies that have been dangerously atrophying in an era of spectacle politics dominated by television and the politics of image and spin (see Kellner 2003a). Democracy involves democratic participation and debate as well as voting. In the Big Media Age, most people were kept out of political discussion and were rendered by broadcast technologies passive consumers of infotainment. Access to media has been controlled by big corporations and only a limited range of voices and views have been allowed to circulate (see Kellner 1990). In the Internet Age, by contrast, everyone with access to a computer, modem, and a service provider can participate in discussion and debate, facilitating access to evolving public spheres to large numbers of individuals and groups kept out of the democratic dialogue during the Big Media Age. Consequently, a technopolitics can unfold in the public spheres of cyberspace and provide a supplement, though not a replacement, for intervening in face-to-face public debate and discussion. For instance, many computer bulletin boards and Web-sites have a political debate conference where individuals can type in their opinions and other individuals can read them and if they wish respond. Other sites have live real-time chat rooms where people can meet and interact. These forms of cyberdemocracy constitute a innovative modes of public dialogue and interaction, and take place in new public spheres, thus expanding our conception of democracy (Kellner 1995 and 1997).

Such technopolitics should not replace political struggle in the real world and the danger exists that Internet democracy will become a closed in space and world in itself in which individuals delude themselves that they are active politically merely through exchanging messages or circulating information. Further, there are dangers of ICTs increasing political inequalities, producing new elites, and disfranchising even further the disenfranchised. Obviously, much of the world does not even have telephone service, much less computers, and there are vast discrepancies in terms of who has access to computers and who participates in the technological revolution and cyberdemocracy today.

Appropriate and Sustainable Technology

Critics of emergent technologies and cyberspace repeat incessantly that it is by and large young, white, middle or upper class males who are the dominant players in the cyberspaces of the present, and while this is true, statistics and surveys indicate that many more women, people of color, seniors, and other minority categories are becoming increasingly active.[14] Moreover, it appears that computers are becoming part of the standard household consumer package in the overdeveloped world and will perhaps be as common as television sets in the near future, and certainly more important for work, social life, and education than the TV set. In addition, there are plans afoot to wire the entire world with satellites that would make the Internet and communication revolution accessible to people who do not now even have telephones, televisions, or even

electricity.[15]

Theorists ranging from Lewis Mumford, Herbert Marcuse and Murray Bookchin to Ivan Illich and E.M. Schumacher have called for appropriate and sustainable technology. The UN and World Economic Forum have used the criteria of "sustainability" to evaluate whether certain policies or technologies serve the interests of developing countries.[16] Moreover, theorists of an alternative globalization, or globalization from below, have also called for technologies that serve people's basic needs, protected the environment, empowered individuals and groups to participate more fully in labor and social activity, and that are self-valorizing rather than just enhancing capital and dominant such groups.

Moreover, there are dangers for developing countries in adopting new technologies too fast or without adequate preparation and protection. For instance, introducing industrial technology can notoriously damage the environment and using technology to replace or deskill workers can harm the working class, just as replacing traditional cultures with globalized and "modern" ones can destroy traditional practices. Thus in some cases a "precautionary principle" should be adopted that carefully evaluates the effects and consequences of introducing new technologies before they are implemented.[17] Bill Joy (2000) has made a similar argument for developed countries that are considering certain forms of cloning and genetic engineering biotechnology, or nanotechnology before these technologies are fully understood or their effects can be understood and charted. Just as scientists have called for voluntary relinquishment and restricting certain technologies like human cloning, so too should developing countries be careful in their promotion and widespread adoption of ICTs.

Yet many developing countries and progressive groups and individuals within them have used ICTs in emancipatory and positive ways. There are by now copious examples of how the Internet and cyberdemocracy have been used in oppositional political movements.[18] A large number of insurgent intellectuals are already making use of these technologies and public spheres in their political projects. The peasants and guerilla armies struggling in Chiapas, Mexico from the beginning used computer databases, guerrilla radio, and other forms of media to circulate their struggles and ideas. Every manifesto, text, and bulletin produced by the Zapatista Army of National Liberation who occupied land in the southern Mexican state of Chiapas in 1994 was immediately circulated through the world via computer networks.[19] In January 1995, the Mexican government moved against the movement and computer networks were used to inform and mobilize individuals and groups throughout the world to support the Zapatistas struggles against repressive Mexican government action. There were many demonstrations in support of the rebels throughout the world, prominent journalists, human rights observers, and delegations traveled to Chiapas in solidarity and to report on the uprising, and the Mexican and U.S. governments were bombarded with messages arguing for negotiations rather than repression. The Mexican government accordingly backed off their repression of the insurgents and as of this writing in fall 2003, they have continued to negotiate with them, and there has not been the type of repression usually seen in regard to oppositional movements.

ICTs have also famously been used in anti-corporate struggles against global megacorporations such as Nike and McDonald's, have been used by oppositional social movements ranging from gay and lesbians to environmentalists, and have helped generate and sustain the anti-corporate globalization movements and peace movements that have emerged since the threatened

and then actual war against Iraq (see note 15). Yet, obviously, reactionary groups can and have used the Internet to promote their political agendas as well. In a short time, one can easily access an exotic witch's brew of ultraright Web sites maintained by the Ku Klux Klan, myriad neo-Nazi groups including Aryan Nations and various Patriot militia groups. Internet discussion lists also promote these views and the ultraright is extremely active on many computer forums, as well as their radio programs and stations, public access television programs, fax campaigns, video and even rock music productions. These groups are hardly harmless, having promoted terrorism of various sorts extending from church burnings to the bombings of public buildings. Adopting quasi-Leninist discourse and tactics for ultraright causes, these extremist rightwing groups have been successful in recruiting working class members devastated by the developments of global capitalism, which have resulted in widespread unemployment for traditional forms of industrial, agricultural, and unskilled labor.

The Internet is thus a contested terrain, used by Left, Right, and Center to promote their own agendas and interests. The political battles of the future may well be fought in the streets, factories, parliaments, and other sites of past struggle, but all political struggle is already mediated by media, computer, and information technologies and will increasingly be so in the future. Those interested in the politics and culture of the future should therefore be clear on the important role of the new public spheres and intervene accordingly.

Concluding Comments

Hence, in conclusion I would suggest that there is an objective ambiguity inhering in the connection between emergent technologies and alienation. While ICTs are in some cases empowering of individuals and groups in opposition to the dominant social order, they also increase the power of ruling social forces and can be used as instruments of domination. While information and communication technologies may give a chance for members of subordinate class, race, gender, and regional formations to gain more power and equality vis-a-vis hegemonic forces, they may also increase inequality. Likewise, in individual and group use, emergent technologies may arguably produce alienation in some forms, but may also contribute to disalienation.

In this complex situation, to make serious claims concerning alienation and new technologies one must specify in more detail than in dominant technophobic discourses on ICTs exactly what sort of alienation is being produced, how this is happening, what is bad about it, and how it can be overcome. I have suggested that many claims concerning technology and alienation in the mushrooming literature on ICTs are not as convincing as the classic Marxian discourse of the alienation of labor under capitalism and thus while the emergent technologies provide new life and substance for the somewhat worn-out and overused discourse of alienation, one needs more substantive analysis and critique to redeem claims being made concerning technology and alienation.

Finally, it may be that alienation is the human condition and that it can never be fully overcome as the complexity and conflicts of human life make it impossible to reconcile all separations and differences between human beings, nature, and cultures and technologies. Yet we should be aware that technologies ranging from the machine, to assembly lines, to broadcasting media, to ICTs, and most recently to biotechnology profoundly transform human beings. They all arguably produce specific forms of alienation that can be delineated, attacked, and in some cases

overcome. Hence, we should always be aware that new technology may produce novel forms of alienation and thus challenges for critical theory to articulate and radical politics to overcome.

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Notes

2. Postmodern theories claim that we are undergoing dramatic changes and mutations in the transition from modernity to postmodernity (see Baudrillard 1993 [1976]; Jameson 1984 and 1991; Harvey 1989, and the discussions in Best and Kellner 1991, 1997, and 2001). Castells (1996, 1997, and 1998) argues that information and communication technologies are creating a novel form of the global economy and networked society.

3. On the various stages of development of the Frankfurt School, see Kellner 1989a and for more recent reflections on the roles of emergent technologies in the current stage of capitalist development see Best and Kellner, 2001 and Kellner, 2003a.

[4] On the project of developing a critical theory of technology, see Feenberg 1991, 1995, and 1999; Kellner 1997; and Best and Kellner 2001.

5. On the various standpoints and strategies of critique of the Frankfurt School, see Kellner 1989a. Although the critical theorists are sometimes associated with a technophobic critique of technology as domination, in their best works they develop more dialectical perspectives; see Kellner 1989a.

[6] See the dual critique of academic philosophy of technology and social science positions in Feenberg 1991, 1995, and 1999.

7. Marx, for example, in his conception of a humanized world, a world more fit more human beings, included industry and technology in such a schema.

8. These notebooks were never published during Marx's life and their printing in 1932 caused a sensation, presenting a vigorous philosophical and humanist Marx quite different from the economic theorist and "scientific socialist" championed by the official Marxian working class movements. On the importance of the Paris Manuscripts for the interpretation of Marxism, see Marcuse 1972 [1932]: 3-48.

9. When the concept of alienation began circulating in the 1950s and 1960s in Marxist, existentialist, religious, and sociological discourses, the implication was always that alienation itself is bad, that it constitutes a danger to human beings that should be overcome in the transformation to a non-alienating form of life. At the time, I believed that it was good to be alienated in some senses from the dominant society of the period, so that in the '50s and '60s when the discourse of alienation began circulating in sociological, philosophical, and even public circles, I always thought it was positive to be alienated from an other-directed, conformist, and repressive society. Consequently, when I was doing my doctoral dissertation in philosophy in the 1960s and early 1970s I argued that in some senses alienation and authenticity were equivalent, that you couldn't be an authentic self, in this society, without being alienated from it, and thus alienation from the dominant society was a necessary step in creating a new life and society. In other senses, however, alienation signifies a harmful condition that should be overcome, thus a discourse of alienation must specify whether the condition described is positive or negative and if the latter how it can be superseded.

[10] See Kraut, et al 1998 and the discussion of criticisms of the study in The New York Times,

September 14, 1998.

11. But does not need to be. Call-in and talk radio and television, as well as electronic town meetings, can involve two-way communication and participatory democratic discussions. Theorists like Baudrillard who argue against television and the media on the grounds that they promote only one-way, top-down communication essentialize the media and freeze the current forms of the media into fixed configurations, covering over the fact that media can be reconstructed, refunctioned, and constantly changed.

[12] For my Web-site and home page, see http://www.gseis.ucla.edu/faculty/kellner/kellner.html; for my weblog blogleft see http://www.gseis.ucla.edu/courses/ed253a/blogger.php; thanks to Richard Kahn for help in developing both.

[13] See Brecht's radio theory collected in Silberman 2000: 41ff.

14. The "digital divide" has emerged as the buzzword for perceived divisions between information technology have and have nots in the current economy and society. A U.S. Department of Commerce report released in July 1999 claimed that digital divide in relation to race is dramatically escalating and the Clinton administration and media picked up on this theme (See the report "Americans in the Information Age: Falling Through the Net" at http://www.ntia.doc.gov/ntiahome/digitaldivide/). A critique of the data involved in the report emerged, claiming that it was outdated; more recent studies by Stanford University, Cheskin Research, ACNielson, and the Forester Institute claim that education and class are more significant factors than race in constructing the divide (see http:cyberatlas.internet.com/big-picture/demographics for a collection of reports and statistics on the divide). In any case, it is clear that there is a gaping division between information technology haves and have nots, that this is a major challenge to developing an egalitarian and democratic society, and that something needs to be done about the problem. My contribution involves the argument that empowering the have nots requires the dissemination of new literacies and that access alone is not enough to empower groups and individuals previously excluded from economic opportunities and socio-political participation.

15. It was announced in April 1997 that Boeing Aircraft joined Bill Gates in investing in a satellite communications company, Teledesic, which plans to send up 288 small low-orbit satellites to cover most of the Americas and then the world in 2002 that could give up to 20 million people satellite Internet access at a given moment. See USA Today, April 30, 1997; in May 1998, Motorola joined the "Internet in the Sky" Project, scrapping its own $12.9 billion plan to build a satellite network capable of delivering highspeed data communications anywhere on the planet and instead joined the Teledesic project, pushing aside Boeing to become Teledesic's prime contractor (New York Times, May 22, 1998). An "Internet-in-the-Sky" would make possible access to new technologies for groups and regions that did not even have telephones, thus expanding the potential for democratic and progressive uses of new technologies; as of Fall 2003, however, such plans have failed to materialize and some are skeptical that they will, while others see wireless and satellite networks emerging as the next stage of development.

[16] While the term "sustainability" goes back to post-World War Two attempts to develop technological appropriate to human beings and the quality of the environment, the term "sustainable development" was adopted in the Agenda 21 program of the United Nations unveiled at the 1992 Earth Summit. Critics, however, saw this concept as promoting excessive development and sought to define sustainability as "a means of configuring civilization and human activity so that society and its members are able to meet their needs and express their greatest potential in the present while preserving biodiversity and natural ecosystems, and planning and acting for the ability to maintain these ideals indefinitely." See http://www.wikipedia.org/wiki/Sustainability.

[17] The precautionary principle was introduced by environmentalists in the 1980s, "and is reflected in the 1992 Rio Declaration on Environment and Development (signed at the United Nations Framework Convention on Climate Change)." The principle indicates that "even if there is scientific uncertainty regarding a risk and its consequences, preventative measures may be justified. This principle is often invoked when the consequences are considered great enough to require expensive amelioration, even when the risks are considered low." In practice, it involves sorting out costs and benefits of introducing new technologies and deploying preventive measures to control harmful effects and consequences. See http://www.wikipedia.org/wiki/Precautionary_Principle.

[18] See Kellner 1997; Best and Kellner 2001; Downing 2001 and Couldry and Curran 2003.
19. See Cleaver 1994, the documents collected in Zapatistas 1994, and Castells 1997.