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Whose Technology? Whose Modernity? Questioning Feenberg's *Questioning Technology*

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In his trilogy of books on the philosophy of technology, Andrew Feenberg (1991, 1995, 1999) provides one of the most sophisticated theories of the technology-society nexus. His most recent work—*Questioning Technology* (1999)—demonstrates forcefully the shortcomings of traditional theories of technology, which either characterize technology as neutral or essentialize technology as some kind of autonomous, deterministic, and homogenizing force acting on society. In short, as Feenberg claims, there is no “essence” of technology. Technology is defined contextually and locally by the particular technology-society relationship. Feenberg, in agreement with Don Ihde, claims that technology can never be removed from a context and therefore can never be neutral (Feenberg 1999, 213). Technological design is inherently political. Consequently, the observed constraint on design choice is not some “essence” of technology but can be explained by the hegemonic control of the design process by privileged actors.

He suggests that a “radical democratic politics of technology” can thwart this hegemony and open up space to reshape of modernity from within. The design choice process must be liberated by what he calls “democratic rationalization,” in which subjugated actors intervene in the technological design process to shape it toward their own ends. Of particular note is Feenberg’s (1999, 93) claim that environmentalists’ struggles with technology represent “the single most important domain of democratic intervention into technology.”

I take no issue with Feenberg's criticism of essentialist philosophies of technology, nor with his claim that technological design is political. However, I want to challenge the efficacy of his proposal for a "democratic rationalization" of the design process. In focusing on the "micropolitics" of local struggles over technological design, he largely ignores the broader context of the global market system and how the "logic" of the market always seems to prevail.

In addition, Feenberg's claim that "environmentalism" will lead the charge in this transformation cannot be substantiated. History indicates that his optimism is largely unfounded. Grassroots resistances typically are either overcome by the broader context of global-fluid capital or co-opted by the bureaucratic machine (e.g., where environmentalism becomes mainstreamed). I argue that any attempt to merge philosophy of technology and environmentalism must address our increasing embeddedness in technological systems (i.e., second nature) or, conversely, the increasing disembodiedness from the material world (i.e., first nature).¹

Feenberg's Radical Democratic Politics of Technology

Before moving on to Feenberg's proposal for a radical democratic politics of technology, it is first necessary to briefly lay out his critique of traditional theories of technology. Little needs to be said concerning the "neutrality" of technology. Since the social-political nature of the design process has been exposed by Langdon Winner (1985) and others, few adhere to the neutrality of technology thesis. "Essentialist" philosophies of technology, on the other hand, still hold much credence and therefore must be addressed.²

Feenberg argues that scholarly interpretations of the social construction of technology³ have established convincingly that the technology-society relationship is not unilinear (Feenberg 1999, 78-83). These theorists have demonstrated through their analysis of particular technological artifact designs that the design process is not deterministic.⁴ There is a significant degree of contingency, difference, or as Feenberg terms it, "ambivalence" in society's relationship with technology (Feenberg 1999, 76). The essentialist characterization of technology as an autonomous rationalizing force acting on society is thereby vitiated by social constructivist studies of technology development.

Although constructivism offers a serious challenge to essentialist philosophies of technology, Feenberg rightly points out its deficiencies—namely, that it is too narrowly focused on the development of particular technological artifacts/systems (Feenberg 1999, 11). The problem that constructivism

ignores is the larger question of how particular design choices are made over other choices, which, as Feenberg argues, is an inherently political question.

To formulate his politics of technology, Feenberg offers a two-level critique: one focusing on the local level of technological design and the other focusing on the metalevel of cultural worldview, or hermeneutic (i.e., the presuppositions and biases inherent in our present relations with technology) (Feenberg 1999, 202). This two-level analysis by Feenberg seems appropriate—he is not alone in arguing that local movements, whether environmental, technological, or other, must be coupled with overarching metalevel critiques of culture/society.

In addition to drawing on the constructivists mentioned above, Feenberg also borrows from critical theory—specifically, Habermas and Marcuse—to arrive at his proposal: a “democratic rationality” of technology. According to Feenberg, Marcuse was right in arguing that technology is largely socially determined, as the social constructivists of technology have amply confirmed. Nevertheless, Feenberg agrees with Habermas’s criticism of Marcuse; that is, Marcuse appeals to a romantic myth of “outsiders” as the basis for transforming society (Feenberg 1999, 153). Marcuse argues that those caught up in the “one-dimensional” society are too inundated by instrumental rationality to provide a means of escape, and hence the change must come from the “outside,” either through an aesthetic dimension or through marginalized groups that are not part of the one-dimensional society (Marcuse 1964). Feenberg, on the other hand, argues that the goal is “not to destroy the system by which we are enframed but to alter its direction of development through a new kind of technological politics” (Feenberg 1995, 35). In other words, steer the system from within through subtle hybridizations, not mass revolution.

Feenberg adopts Habermas’s conception of the democratic community as the context for liberating technological design choice from hegemonic constraints. However, he makes significant modifications to Habermas’s theory of communicative action. Habermas argues that technology is neutral but dominated by instrumental rationality and therefore a hindrance to communicative action. The best that can be hoped for, according to Habermas, is to hold technology’s instrumental rationality at bay so that communication may continue unabated within the democratic community (Habermas 1968).

Feenberg argues that Habermas is mistaken in his conception of technology as neutral and instrumental. Again, the neutrality of technology is no longer debatable—technology cannot be separated from a cultural context. In regard to Habermas’s claim that technology equates to instrumental rationality, the constructivist studies of technology have demonstrated that actors are able to successfully shape design choice for their own noninstrumental

ends. However, since the struggle over design choice is centered on technology, Feenberg claims that it is “rational”—but not instrumentally rational (Feenberg 1999, 105). Feenberg, therefore, brings rationality into Habermas’s vision of a democratic community to arrive at his suggested “democratic rationality.” The possibility exists to choose rationally more liberating technological designs that further the various interests of the community of actors; as Feenberg (1999, 76) states, “There are ways of rationalizing society that democratize rather than centralize control.”

There is, however, an obvious tension between the contingency observed in the design choice process and the constraints placed on this process by the larger cultural-political milieu. Feenberg characterizes this tension as the ambivalence of technology, which he conveys in the following two principles (Feenberg 1999, 76):

1. *Conservation of hierarchy*: social hierarchy can generally be preserved and reproduced as new technology is introduced. This principle explains the extraordinary continuity of power in advanced capitalist societies over the past several generations, made possible by technocratic strategies of modernization despite enormous technical changes.
2. *Democratic rationalization*: new technology can also be used to undermine the existing social hierarchy or to force it to meet needs it has ignored. This principle explains the technical initiatives that often accompany the structural reforms pursued by union, environmental, and other social movements.

Feenberg (1999, 101) admits that it is “undeniable that advanced societies exhibit the great concentrations of power in technologically mediated organizations” and that “despite occasional resistance the design of technical institutions disqualifies modern men and women for meaningful political participation.” Nevertheless, he is optimistic that democratic rationalization can overthrow this entrenched power: “the tensions in the industrial system can be grasped on a local basis from ‘within,’ by individuals immediately engaged in technically mediated activities and able to actualize ambivalent potentialities suppressed by the prevailing technological rationality” (Feenberg 1999, 105). The crux of the issue, in terms of Feenberg’s proposal, is the degree to which democratic rationalization can override capitalism’s conservation of hierarchy. The key to this overthrow, according to Feenberg, is to expose the hegemony-constraining design choice through what he calls a reflexive “hermeneutic technology.”

Feenberg draws on a number of intellectual traditions—hermeneutics from Heidegger, cultural theory from Foucault and Baudrillard, and critical theory—to reveal how the interests of certain actors achieve and maintain control of the design choice process.⁵ According to Feenberg, control over design

choice is not necessarily economically motivated as many have argued. That is, the utilitarian efficiency of the market is not always the motivating factor. Frequently, the aim is to either de-skill workers or for management to maintain operational autonomy (Feenberg 1995, 87). These “strategic” actors, as Feenberg calls them, are able to concretize their particular biases as the given technological code (Feenberg 1999, 113). And because they intentionally choose technological designs that maintain operational autonomy, the centralized-hierarchical power structure is perpetuated. Feenberg, therefore, admits that although technocratic power is foundationless and contingent, it nevertheless has a “unidirectional tendency” (Feenberg 1995, 92). Subjugated—tactical—actors are thereby excluded from the design choice process unless resistance is successful, which Feenberg obviously believes is possible.

What is needed, according to Feenberg, is a theory of cultural change: “A new culture is needed to shift patterns of investment and consumption and to open up the imagination to technical advances that transform the horizon of economic action” (Feenberg 1999, 98). However, transformation is no longer simply about transfer of the ownership of capital because of the “technological inheritance” of hierarchical control (Feenberg 1991, 39). Feenberg believes that “environmentalism,” as it brings other values to bear on the technological design process, is one of the most promising terrains for evoking this change (Feenberg 1999, 92).

Critique

On one hand, Feenberg acknowledges that economics (i.e., capitalism) is the greatest hindrance to a more liberatory politics of technology: “Technological design must be freed from the profit system” (Feenberg 1999, 57). Nevertheless, he argues that this hindrance can be overcome through the struggle of various local movements over technology. To illustrate, he provides several examples of these “democratic rationalizations” of technology, such as the struggle over the Internet and AIDS activists’ attempts to reshape the Food and Drug Administration (FDA) drug approval process.

Contra Albert Borgmann, Feenberg frames the Internet as an example of a successful attempt to steer technology toward more democratic ends—for example, enhanced communication (Feenberg 1999, 191). And no doubt, the Internet has brought many formerly disparate groups and individuals together. Nevertheless, in the larger context of the market system, we can see that the design space created by the Internet is well on its way to becoming colonized as just another place to consume—Bill Gates’s ridiculous wealth,

Microsoft's clear monopoly, advertising on virtually every web page, junk e-mail, and so on. How long before the logic of the market prevails, or has it already? The Internet is still in its infancy, but it is rapidly gaining technological momentum⁶ (to use Thomas P. Hughes's [1983] term), and every step taken narrows the playing field in terms of which actors will have a stake in shaping its future.

Even if we concede that it is possible to thwart the plans of the Microsofts and somehow make the Internet a continuing sight of liberation,⁷ how democratic is the Internet? That is, can anyone enter the game? The answer is no. It costs \$2,000 plus to step up to the table and another \$20 plus per month to stay in. Then there is the perpetual need for costly upgrades because your \$2,000 machine becomes obsolete within two years. The technological obsolescence built into our new virtual world puts the old program of planned obsolescence from Detroit to shame.⁸

Economics aside, how many really have the technical expertise to hack into the Internet or some other burgeoning virtual technology and "steer" it toward their own ends? In many ways, the Internet has been a source of democratization, but at the end of the day, how democratic is a technological system that has built-in obsolescence, is based ever increasingly around consumption, and requires dependence on a cadre of techno-elites⁹ to manage the "problems"?

Another example of democratic rationalization offered by Feenberg is AIDS activism. Granted, AIDS activism did result in altering the direction of AIDS research and the drug approval process. However, in his history of AIDS activism, Steven Epstein (1996) tells a tale of co-optation and fragmentation. Because of the extreme amount of expertise involved in AIDS research, activists were dependent on their adversaries, the scientists. They could only gain credibility and authority by becoming experts themselves (p. 351). The problem, however, is that this emphasis on expertise created a hierarchy among activists and consequently a fragmentation. There were the "insiders"—the activists who worked directly with the scientists—and the "outsiders" (i.e., all the rest) (p. 287). Moreover, because of the immense amount of disagreement over the direction of AIDS research, not all voices could be heard. Epstein concludes from his analysis of AIDS activism that for any significant change to occur, "efforts . . . must be carried out in conjunction with other social struggles that challenge other, entrenched systems of domination" (p. 352). As history indicates, this is easier said than done.

Even if we grant that some of these movements have been successful, to whatever degree, is there a danger in celebrating these important but nevertheless local victories? In this regard, Feenberg appears to fall into the same

trap as the constructivists, whom he rightly criticizes. He seems to argue that if a particular design process is "democratic," then it is good. Bracketing technological design in this way makes his optimism understandable.¹⁰ There is an implied "progressionism" in his attitude toward technology—that is, technological advancement is fine as long as it is democratic (as defined by him). However, focusing on "particular" relations with technology obscures the fact that most of the local "victories" become co-opted in the larger context of global capitalism.¹¹ In the long run, this emphasis on the local obfuscates the hegemony that, on one hand, Feenberg acknowledges but, on the other, offers no real strategy for addressing other some vague notion of a "reflexive technological hermeneutic." Can the technological hermeneutic ask questions deep enough to undermine the prevailing attitude of "technology equates to economic progress"? In short, it is difficult to understand Feenberg's optimism when he admits capitalism's "unidirectional tendency" toward "conserving hierarchical structures" through technological design.

Although not completely pervasive, it appears that in the long run, the logic of the market does seem to prevail. Thomas P. Hughes's history of the electrical utility industry is one such example in which initially a large amount of contingency existed in the design process. He compares the development of electrical systems in Chicago, London, and Berlin and shows how each context transfigured the shape of the electrical system. Chicago was dominated by *laissez-faire* economics, Berlin by heavy government regulation, and London by parochialism—each giving, initially, a unique face to "electricity." London held out the longest against standardization with its extremely fragmented and nonstandardized conglomerate of electrical systems. Nevertheless, Hughes claims that by the 1930s, all three systems were homogenized by the market demands of utilitarian efficiency (Hughes 1983).¹²

As in the case of the Internet, electricity was hailed as a liberatory technology—emancipating the common person from the drudgery of everyday life. But in the end, we find ourselves more deeply embedded in a system over which we have no control and no way out—that is, short of dropping out completely. Like London, we are all forced to capitulate to the standard (e.g., Microsoft) of the present (Internet) system. Why should the Internet be any different? The larger context of the global market system has only intensified since the birth of the electrical industry. Hence, unless the broader context is adequately addressed, there is no reason to believe things will be any different for the Internet or any other "hopeful" technologies.

Granted, there may be occasional successes in shaping modernity as Feenberg suggests, but the larger train of capitalism on which modernity is securely fastened rolls on:

Since the mid-1970s, the top 1 percent of households have doubled their share of the national wealth. The top 1 percent of U.S. households now have more wealth than the entire bottom 95 percent.

The top 1 percent of households control 40 percent of the wealth. Financial wealth is even more concentrated. The top 1 percent control nearly half of all financial wealth (net worth minus equity in owner-occupied housing).

Microsoft CEO Bill Gates owns more wealth than the bottom 45 percent of American households combined. By the fall of 1998, Gates's \$60 billion (now closer to \$100 billion) was worth more than the gross national products of Central America plus Jamaica and Bolivia.

Average weekly wages for workers in 1998 were 12 percent less than 1973, adjusting for inflation. Productivity grew nearly 33 percent in the same period (Mokhiber and Weissman 1999).

A total of 350 individuals own as much wealth as the bottom half together (Luke 1997).

The hegemonic control of technology by capitalism has played a major role in increasing the disparity between the haves and the have-nots.¹³ Even today, while much of the world is in a recession, the United States is reveling in a technofetish-induced economic high. In a world where 20 percent of the population consumes 80 percent of the energy and resources, consumption must be addressed (Boff 1993, 18). It cannot be denied that much of this disparity in consumption is a result of the wasteful energy systems in which we are embedded.

The increasing embeddedness in technological supersystems, with their associated consumptive life worlds, lies at the root of the increasing disparity. What does a more democratic Internet mean to a rural Nigerian with no electricity whose main concern is obtaining clean water, food, and fuel? Or the FDA approval process to Africans suffering from AIDS? Nothing.¹⁴ As we carry on with efforts to "democratize" the virtual world, we leave the rest of the real world further and further behind. Feenberg argues that the design process can be democratized by including subjugated knowledges, but many of the subjugated cannot even step up to the table and make their voices heard. And while the freight train of technology rolls on, these marginalized groups become further and further distanced from any chance of being heard. Obviously, technology must be questioned, but more important, the fuel that drives the train of technology—capitalism—must be questioned.

What is needed is not a technological hermeneutic but a sustained critique of the global market system in conjunction with an ecological politics sympathetic to this critique.¹⁵ Workers cannot democratically resist attempts to de-skill or protest poor working conditions when a corporation can simply move to another country and continue to exploit without resistance. In the long run,

the logic of the market still carries the day. Flexible-fluid capital must be addressed, if there is to be any possibility for significant transformation.

This is the primary reason why Feenberg's faith in environmental resistance movements is unfounded. He states that "as a new century begins, democracy appears poised for a further advance. With the environmental movement in the lead, technology is now about to enter the expanding democratic circle" (Feenberg 1999, vii). The history of environmentalism tells a less optimistic tale. Andrew Hurley's (1995) history of the steel mill community of Gary, Indiana clearly portrays the problems inherent in sustaining grassroots environmental movements in the context of global capitalism. Hurley's analysis demonstrates how cooperative efforts are thwarted. Although initially the movement had some success, the steel industry used the rhetoric of "economic downturns" and job losses to disregard environmental and safety reform. This kind of rhetoric, as evidenced, quickly drives a wedge in solidarity because it reduces everyone to a "catch-as-catch-can" mentality (Hurley 1995).

In addition, Robert Gottlieb's comprehensive history of environmental activism indicates that grassroots movements ultimately are either squashed by corporate capitalism or co-opted by the Washington bureaucratic machine—big payrolls, Washington lobbyists, and long lists of members who do nothing but write a check once a year (Gottlieb 1993).

I am not saying that these movements are never successful. They have done a tremendous amount of good, but for whom? In other words, whose "democratic circle" is being expanded, and at whose expense? My point is that because the larger context (i.e., global capitalism) is not being adequately addressed, the problems have simply been moved out of sight and consequently out of mind (e.g., the creation of tariff-free export zones throughout the Third World and NAFTA's opening up the southern border so that multinational corporations can freely shop for the best place to exploit labor).

Granted, the successful democratization of technological design in one instance does not necessarily mean that someone in the Third World loses out. In other words, I am not foolishly suggesting that the West/North should throw away 100-plus years of social-political reform or cease striving for additional reform because the rest of the world has not yet experienced it. Rather, I am arguing that focusing on the microlevel politics of particular relations with technology, as Feenberg does, can be detrimental if those particular technologies are part of a larger context that is increasing the disparity between the haves and the have-nots.¹⁶ In short, Feenberg does not sufficiently "question" technology, which is inextricably linked to a system that inherently increases disparity.

Conclusions

Despite my criticisms, Feenberg's analysis remains extremely valuable. His critique of essentialist philosophies of technology alone is a significant step toward clarifying the future direction of the philosophy of technology. Moreover, his blending of constructivism, critical theory, and cultural studies brings some of the most sophisticated theories to bear on technology studies and has thereby opened up new ways of perceiving the technology-society relationship.

Although Feenberg does offer examples of the "democratic rationalization" of technology (i.e., where actors have been able to steer technological design toward their own interests), I would argue that he has exaggerated the significance of these victories in light of the larger context of global capitalism. Given time and space, the logic of the market remains the prevailing force shaping the face of modernity.

This is not to say that modernity cannot be significantly changed for the better. Nor am I suggesting that the "successes" of the developed world directly result in the oppression and exploitation of the nondeveloped world. My point is that emphasizing the local successes of technology relations (which are in themselves questionable) will not only leave us far short of the goal of a more democratic-egalitarian modernity, but it may, in fact, also blind us to the headlong plunge into an ever-increasing disparity that is the plight of so many in the world today. Even more significant, in celebrating the "democratization" of technology in these limited contexts, Feenberg largely ignores the fact that we are becoming increasingly embedded in technological systems (which are characterized by fetishized consumerism) that remove us further and further from the real world in which many still face crucial life-threatening problems.

Notes

1. *First and second nature* are terms used, primarily by critical theorists, to distinguish between the humanly constructed world of culture and technology and the material world. Granted, as Marx himself admitted, there is no true "first" nature left, hence we are talking about *degrees*.

2. Essentialist philosophies of technology originated with Heidegger and were further developed by the Frankfurt schoolers: Horkheimer and Adorno (1972) and Marcuse (1964).

3. Which he broadly conceives to include social constructivists, contextualist historians of technology such as Hughes, and actor-network theorists, such as Callon and Latour.

4. See Bijker, Hughes, and Pinch (1987) and Bijker and Law (1992) for expositions on the various schools of constructivist studies of technology and of particular studies of design processes.

5. In addition, Feenberg explains how "essentialist" philosophies of technology have argued mistakenly for an essence of technology because of their exclusive focus on the metalevel of culture. If one ignores the contingency evidenced at the secondary level of design, as essentialist theories of technology do, it is obvious how technology can be misconstrued as being an autonomous-rational-deterministic force. Feenberg rightly argues that it is not "technology" per se that evinces this at times unilinear trajectory but the interests of particular actors.

6. Or becoming "concretized," to use Feenberg's term.

7. Microsoft is currently embroiled in a major antitrust lawsuit with the government. However, even if significant actions are taken against Microsoft, it is doubtful that anything can undo the hegemony already established.

8. Not to mention the economic roadblock in getting people living in nondeveloped countries, where the cost of a computer is frequently two or three times their annual income, "online."

9. For a discussion of the emerging "techno-elite," see Luke (1999).

10. I believe Feenberg's unfounded optimism is largely due to his reliance on Habermas's conception of a democratically ideal community that is limited both temporally and spatially.

11. I am in no way discounting the achievements of social reform movements over the past 100-plus years. My point of contention is primarily concerned with Feenberg's emphasis, which I discuss in more detail below.

12. Whereas Hughes (1983) admits that "load factor" was a technological limitation driving the direction of the electrical utility industry, he also concedes that the industry would look considerably different in a society that did not count "capital cost"—that is, if the industry were driven by values other than utilitarian efficiency and the "bottom line" of the market.

13. In the face of the growing affluence of the few, nearly 20 percent of Americans now live below the poverty line (CNN, 11 July 1999).

14. The gross and increasing disparity between those who have access to medical treatment (e.g., for AIDS) and those who do not is plainly demonstrated in Farmer (1999).

15. See the works of Timothy W. Luke, David Harvey, and David Pepper as examples that both critique capitalism and attempt to formulate some kind of environmental politics. In addition, a number of ecofeminist (i.e., of the socialist brand) authors have also made similar arguments (see, e.g., the works of Mary Mellor or Carolyn Merchant).

16. Again, the Internet and AIDS treatment are prime examples of the gap created by "democratically" (as defined by Feenberg) shaped technologies.

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