Excerpts from:

Computerized Technology and Human Responsibility

Frequently Asked Questions

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1. Does computerized technology threaten our future?

Yes – but not, as the old science fiction chestnut suggested, because the computer might turn traitor and rebel against its masters. The real danger is that the computer will seduce us – seduce us into becoming like it. It does this by mimicking human intelligence – but only those aspects of our intelligence that run mechanically and unthinkingly. By willingly meshing our lives with the technological surround, abandoning our own highest functioning, we learn to sleepwalk in synchrony with our machines.

We don't *have* to sleepwalk, but as one social function after another is transferred to the computer, the invitation is a seductive one, calling for the conscious exercise of personal responsibility in resistance to it.

2. What is an example of this threat?

If you fall into a financial crisis and apply for a loan, not even a personal interview is any longer necessary. It is a "transaction," captured by transaction processing software and based solely upon standard, online data. Everything that once followed from the qualities of a personal encounter – everything that could make for an exceptional case – has now disappeared from the picture. The applicant is wholly sketched when the data of his past have been subjected to automatic logic. Any hopeful glimmer, filtering toward the sympathetic eye of a supportive fellow human from a future only now struggling toward birth, is lost in the darkness between bits of data.

In other words, the human being as a unique and incalculable individual begins to disappear between the cracks of automated logic.

3. Do computers extend our capabilities?

Certainly. For example, the computer's ability to calculate and analyze complex data vastly exceeds our capability. The cautionary note that goes along with fact has to do with the one-sided tendencies that have progressively taken hold of our culture since the dawn of the scientific era – tendencies to substitute analysis and calculation for understanding and meaning. Computers, you might say, are the near perfection of our one-sidedness. That is why they present us with risk on every hand – but certainly not with intrinsic "evil." One- sidedness *can* be brought into balance through proper effort.

4. Were the printing press and other earlier technologies risk-free?

The common assumption is that those who worry about computer risks must uncritically embrace earlier technologies. This is false. The computer can be seen as extending the risks of the printing press further in the same direction: the word becomes still more detached from the human speaker and objectified as "information." Where once we could take unhealthy pride in the wealth of knowledge stored on our bookshelves, now we can take pride in what our databases and access tools give us, as if this afforded understanding. The word becomes an object to be massaged by word-processing software, automatically stored and forwarded, analyzed, and scanned, all without any depth of penetration by either an originating or receiving consciousness. But without such penetration, the word is dead.

There is no way to escape the difficult challenge of using technology responsibly, regardless of which technologies we choose.

5. Is the computer, then, just another tool?

Not really. The computer is a vastly more potent tool than, say, a hammer. It is true that, if I take everything for a nail and let the hammer run riot in my hands, I have forsaken responsibility. But I am not likely to mistake a hammer for a thinking device. Computers are highly adaptive, universal machines, and when we bring to them a willingness to sacrifice our own functioning to that of our tools, we risk sacrificing, not just one particular capacity, but the entire field of human responsibility.

6. What gift does the computer bring us?

One of the primary gifts of many tools is their resistance to human mastery. In overcoming this resistance we advance as human beings. The painful results of my indiscipline with my hammer invite inner growth, which is an enduring legacy. After all, which is of more lasting value: the cabinet I build with nails and eventually leave behind, or the inner mastery I gain through struggling with myself, hammer in hand – a

mastery I will carry as healing capacity wherever I go in an overwrought world?

By claiming to be master of all tools, the computer challenges us to contend for our own mastery on all fronts. Failing the challenge, we lose ourselves; rising to the challenge, we gain ourselves. *The computer is our hope if we can accept it as our enemy; as our friend, it will destroy us.*

7. Does more sophisticated, user-friendly software reduce the risks?

No, it increases the risks. Currently, phone answering systems ask us to punch numbers or pronounce single words, thereby routing us to a human operator who can deal with our substantive concerns. With better voice recognition software, that operator will become a software agent that attempts to hold a conversation with us. If you thought the number-punching phase was irritating, wait until you have to communicate the heart of your business to a computer with erratic hearing, a doubtful vocabulary of 400 words, and the compassion of a granite monolith!

In other words, as software advances, it is applied to more critical activities, where the risks are greater. The technical opportunity to become friendlier at one level is at the same time an opportunity to become unfriendly on a more decisive level. We must be more awake, more alert to our machine-transcending responsibilities, when dealing with the more advanced software, precisely because the advanced capabilities invite us to let go of yet higher human capacities.

8. Are there still risks when the computer's active intelligence recedes into the background, acting as a relatively passive conduit for human communication?

There are many risks, some of which we'll touch on later. A primary concern is the pervasive habit of skimming induced in us by computers. One user boasted of being able to read, assess, and discard a screenful of text in about a second. How much attention can he direct toward the human speaker who uttered the words? Words that stand alone, separate from the person attempting to express himself, are words that have already been cut off from any depth of meaning. We assess screenfuls of text at breakneck speed only by skittering over the logical surface of the words, without any contemplative assimilation.

The correlative act of responsibility is to bend our consciousness toward the speaker. Try to find a sympathetic connection with him, and to understand who is expressing himself in the words. Of course, it is a symptom of the information age that the speaker often cannot even be identified, and that most of the verbal flood inundating us hardly seems worth giving that sort of respect to. But it is far healthier to seek escape from the flood than to accept it with a habit of trivial regard. We end up

trivializing each other, while worshiping dead words (called "information") that we pay no attention to.

9. Isn't technology neutral? 'Guns don't kill people; people do'

Yes, only people can do bad things. But every technology already embodies certain of our choices. A gun, after all, was pretty much designed to kill living organisms at a distance, which gives it a different nature from, say, a pair of binoculars.

The computer takes this much further, since its whole purpose is to bear our meanings and intentions with a degree of explicitness, subtlety, intricacy, and completeness unimaginable in earlier machines. Every executing program is a condensation of certain human thinking processes. At a more general level, the computer embodies our resolve to approach much of life with a programmatic or recipe-like (algorithmic) mindset. That resolve, expressed in the machinery, is far from innocent or neutral when, for example, we begin to adapt group behavior to programmed constraints.

So we meet ourselves – our deepest tendencies, whether savory or unsavory, conscious or unconscious – in the things we have made. And, as always, the weight of accumulated choices begins to bind us. Our freedom is never absolute, but is conditioned by what we have made of ourselves and our world so far. The toxic materials I spread over my yard yesterday restrict my options today.

10. Are we free?

When it comes to human behavior, we cannot both see a pattern of causation and remain trapped in it exactly as before. The seeing itself is a decisive new element in the pattern. The more fully we understand how our artifacts dictate social structures and behavior, the more we are in a position to alter the terms of the dictation.

The strict determinist's only hope for truth is the hope that the truth has wholly eluded us – that we stand subject to determination by powers we can never penetrate with understanding. In other words, it is the paradoxical hope that we can never know ourselves to be determined.

But it also needs saying that every act we undertake in the world, every reshaping of the stuff of the world, is a weight upon the future. Actions have consequences. The solvent dumped in my yard last year affects my gardening possibilities this year. Everything I do today constrains me tomorrow. The intelligent machinery we have previously programmed and set in motion continues to run on by itself according to those past determinations, binding us every more tightly and inviting us to abdicate our freedom in the current moment.

11. Can you and I do anything to alter significantly the technological juggernaut that is transforming society?

Perhaps you and I can only alter things in a minuscule way. But whatever that small arena of possibility, it is the *only* arena within which our distinctively human activity takes place. Precisely so far as we do not strive to affect things, we've abandoned our humanity; we are sleepwalking with our machines.

17. Does the Net make us scatter-brained?

It doesn't *make* us do anything, but the temptation toward scattering is powerful. Just consider the frantic concern for up-to-the-minute recency (as if any sort of profound wisdom is dependent upon having this week's data); the daily flooding of mailboxes; the habit of skimming newsgroups and messages at breakneck pace; the fragmentation of the workday by continual email intrusions; the empty chasing of linkage trails, increasingly prevalent in both the writing and reading of hypertext documents; the widespread encouragement of fear about "missing the party"; and the lottery-like hope of discovering "great finds" on the Net.

A stance of responsibility can only resist these invitations to scatter ourselves in cyberspace. We must ask, "How can we recollect ourselves, find our own centers, and subordinate the online carnival – so far as we choose to deal with it at all – to our deeper, consciously pursued purposes."

19. What should we teach high-school students about computers?

The critical thing is not to make sure they know how to surf the Net, but rather to help them understand the nature of the technology: where does it come from historically, what aspects of the human being does it express, what are the basic principles of its operation, what are the strengths and limitations of the algorithmic (recipe-like) thinking that constitutes all programming, how does the computer begin to alter social relationships....Actually, computers themselves need play only a limited role in these investigations; students can learn a great deal simply by working with algorithms and even acting out the internal operations of computer.

These, of course, are not the subjects that policy-makers are attending to in their mania to wire every classroom.

20. Isn't the Internet irreplaceable as a source of information?

It may become so if we insist on using it to replace all other sources of information.

But the decisive point is this: the problems of education have never in recent history resulted from an information bottleneck. We were an information society long before the computer arrived; our problem has been coping with a surfeit of information – selecting from it, evaluating it, making sense of it. The only way to make sense of information is to rise above it in the experience of meaning – a journey that requires imagination more than anything else.

28. Is more information the key to our problems?

Neil Postman has been reminding us repeatedly that "if a nuclear holocaust should occur some place in the world, it will not happen because of insufficient information; if children are starving in Somalia, it's not because of insufficient information; if crime terrorizes our cities, marriages are breaking up, mental disorders are increasing, and children are being abused, none of this happens because of a lack of information."

Nobody seems to be listening. Yet Postman is right, insofar as information is thought of as something given, something we can "access," store, and process – so far, that is, as we view it in the manner of a program. Meaning, by contrast, cannot be accessed. It can only be entered into – and then only through the exercise of those neglected faculties standing at the opposite pole from our activities as information processors.

41. When will technical progress carry us beyond computer performance and memory limitations?

To expect the impressive, technical gains in speed and memory capacity to remove performance pains is to confuse the human and technical levels of the problem. (See question 7.) After all, *our* problem is not experienced directly as a lack of computational power; it is felt, rather, as inconvenient delay, lost personal time, the inaccessibility of "cutting-edge" software, and the difficulty of working with awkwardly performing tools. No technical advances are ever likely to alter the fundamental shape of *these* problems, because the advances and our frustrations lie on separate planes.

In fact, as long as we are driven to desire the latest technology for its own sake (which is very much part of the human side of the problem), memory improvements and all the technical innovations they stimulate can only worsen our situation: the pace of change accelerates, new inventions proliferate, and every cutting-edge toy we play with is now twelve months instead of twenty-four months away from the

inadequacies of its obsolescence. Clearly this shrinking time interval tells us more about our prospects for satisfaction than does the increasing density of integrated circuits.

42. Isn't timidity in the face of today's technological revolution just a matter of humans feeling threatened by rapid change? And won't the successful survivors be those who vigorously adapt?

Certainly we must adapt. The question is whether we will exercise all the responsibility we possibly can for the shape of the changes we're adapting to. Apart from such a resolve, the advice to adapt is reprehensible and anti-human. The good citizens of Nazi Germany learned to adapt all too well.

43. Should we smash the intelligent machines around us?

Neither the uncritical, pro-technology stance nor the violently anti-technology stance is a matter of wakefulness. *Mastering* the machines in our lives is as different from smashing them as it is from yielding passively to them.

44. Which, finally, is more justified: optimism or pessimism?

Look for the signs. The surest indication that we are allowing technology to lead us toward disaster is the conviction that it is leading us toward paradise.

To believe, for example, that the automobile's (or the computer network's) ability to shrink distances has anything whatever to do with the varying sorts of *inner* distance and connection that community weaves between people is to have lost sight of community. *Any* technology in the hands of a people that has lost sight of community will prove an instrument for the destruction of community, simply because the destruction hinges in the first place on the lost sight, not on the technology.

In other words: technological pessimism is justified precisely to the degree we feel technological optimism.