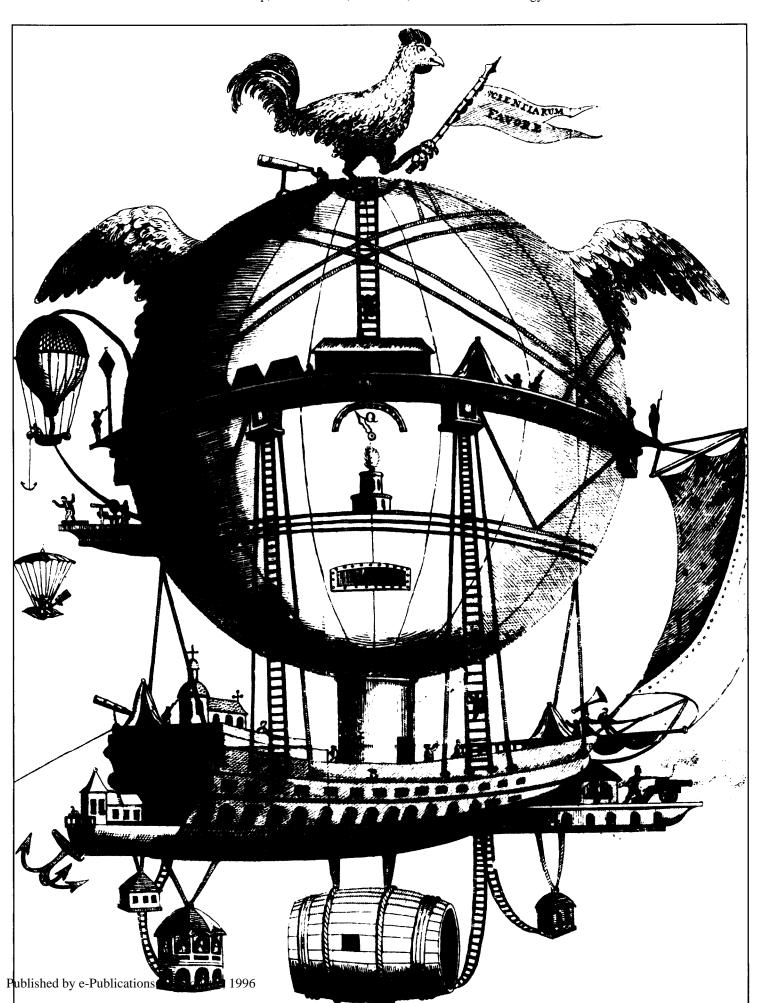# Conversations on Jesuit Higher Education

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Invisible, Inevitable, Paradoxical Technology

PAUL A. SOUKUP, S.J.

Jesuit schools have a long history of engagement with technology—from the telescopes and mechanical devices of the seventeenth century to the radio transmitters and computers of the twentieth. But today new technologies raise questions about core values of Jesuit education. How do we integrate both the technologies and the hallmarks of the Jesuit educational tradition—compassion, critical thinking, community, self-knowledge—when the technology seems to contradict those values? Can technology teach us? Can we teach technology?

We cannot avoid the question because technology plays an unavoidable role in our lives. Most people would agree that technology has some effect on us, though not all would agree on the specific effects or on the valuation of those effects. Each of us can probably reel off anecdotes about our students' dependence on technology, from the positive influence of computers on visual thinking to the hours wasted on video games. Are these new technologies merely tools and toys, or are they something more?

What should faculty at Jesuit colleges and universities do about technology? How do we respond to key issues raised by technology? Can we integrate technology better into the teaching, research, and human living that defines us as communities?

Before we enter into a conversation about these things, I propose that we step back from those specific questions and ask something more basic about technology in general. First, I will review how we take technology for granted and the paradoxes that result from such a stance. Second, I will examine our reactions to technology when we do ponder it more carefully—these

questions posed earlier about Jesuit schools and technology and sug-

gest some answers based on those first two explorations. To put things differently, let us take a closer look at technology: how we don't see it, how we do see it, and then how we might see it.

Disappearing Technology

In one of his more insightful probes, Marshall McLuhan noted that the media are extensions of ourselves. He would have struck even closer to the mark had he faithfully echoed Edward Hall and written that all technology extends us. McLuhan's chief interest, of course, was communication, and his examples reflected that interest: the television extends sight; the telephone, hearing; the microphone, speaking; and so on. To his list we could add many other technologies that enable communication—from automobiles, trains, and planes (which extend our ability to move); to tape recorders and CD's, (which extend our hearing); to fiber optics (which extend our connections to others); to computers (which extend pretty much anything else).

For all this technology really to serve its purpose, which is really to serve us, the technology should be transparent. We extend ourselves well when we do not have to concentrate on doing it. When I telephone my mother, I want to hear her voice, not think about CODECs, digital switches, fiber optic links, billing equip-

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ment, or the telephone company. When I read a book in the evening, I want to engage the ideas of the writer, not think about wordprocessing, computer compositing, web presses, electric lights, the plastics and optics of my contact lenses, much less about writing, which is itself a model of technology.

The more we extend ourselves technologically and the more invisible the technology becomes, the more we take it for granted. Or, to put things a different way, the more we adapt to it. The extensions become essential. Human beings do adapt to their environments; and as technology has become part of our environment, it has become part of our evolution. We have so adjusted to our technology that it has become not just an optional extension, but a necessary part of ourselves. This process of incorporating technology in our living parallels the development and marketing of technologies themselves: they move from novelties to luxuries, then to business tools adopted by more people. Later they become common conveniences until finally they become necessities—how could we live without them? Along with this development comes a parallel downward shift in pricing, which encourages the overall process.

Consider, for example, the telephone. People first perceived it as no more than an interesting toy. Western Union turned down an option to buy the patents for the telephone, reasoning that society's electric communication needs were fully met by the telegraph. Telephones first took root in the homes of the rich and in businesses; after AT&T and the government launched their universal service drive, practically every home and business had a telephone. AT&T then concentrated on persuading people to use the telephone as a normal part of their living: most of us can remember the "Reach out and touch someone" advertising campaign. Today, the telephone is an essential part of our lives. One could trace the same path of development with television, and, more recently, with fax machines, cellular telephones, and computers.

The existence of technology as a transparent extension of ourselves leads to a series of paradoxes: while it is artificial, we must perceive technology as natural if we are to make full use of it. While it is a commanding presence in our world and in our lives, we must pretend it is not there if we are to benefit fully from it. While it is necessary to our living, we fail to perceive technology as a part of us. In short, it is difficult to think about technology because it is so difficult to see it clearly.

The Technological Mirror

When we do look consciously at technology, we find it pretty much everywhere. There are communication technologies, technologies of travel, medicine, agriculture and mining. We have manufacturing technologies, entertainment technologies, and technologies of music, cooking, war, education—the list goes on and on. Jacques Ellul argues persuasively that technology is so much a part of how we live that our very thinking is characterized by what he calls "la technique." We not only depend upon external sets of technologies: we adopt a technological attitude toward the world.

For Ellul, the technical attitude is one that seeks a standardized means to attain a projected end. Its power appears in politics, in business, in economics, in communication, in science, and even

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in education. For the technician, efficiency matters more than outcome, performance more than human good, clear methods more than content. In the long run, people adopt technique for its own sake; there is no end or goal, only a progressive growth of technology (and for Ellul, dehumanization) as they submit to technique. The technical system comes to guide society, displacing other ends, such as religion or knowledge or economic growth. We model our action and behavior on the hugely successful technological projects that we have idealized, if not idolized: the space program (even its failures eventually became successes, as the film *Apollo 13* demonstrated), DNA sequencing, the green revolution, the Persian Gulf war. These models tell us that we can accomplish just about anything, though they don't tell us why we should. To doubters, the retort is that the technology and the way of thinking embodied in it not only works; it works impressively. Remember that the Voyager spacecraft arrived at Uranus within two seconds of the calculated flight plan—after a nine year flight. On the other hand, recall the technical virtuosity (and banality of content) of almost any recent movie blockbuster.

Even our language reflects this esteem for technology. We borrow from technology to describe ourselves. Our minds become computers, with inputs and outputs; things "do not compute"; people "interface" with one another; we process information or just plain "process." We have systems and systems analysis; we form networks. We follow a program of discrete operations.

We become so tied to technology that it grows into an extension of many things from entertainment to companionship and even to political action. This appears most clearly with computer technology, since the computer is inherently a universal machine, one that can simulate almost any process. Computers can act like calculators, graphic displays, typewriters, musical instruments, scientific instrumentation, or even rats in a maze. Because they do this, we begin to depend on the computer to fulfill our needs. We all know people who look almost exclusively to computers for everything from entertainment, to learning, to social interaction (through e-mail or chat rooms). It's a small leap to conclude that the computers can do everything. Need to find jobs for the homeless? Set up a computer job bank. Need to counteract the isolation of the elderly? Set up an elder-net. Need to overcome divisions in society? Give the poor laptop computers.

At the same time that we idealize technology, we fear it. Like some primitive magic that holds the world together, it carries awesome powers for destruction as well as for good. Its daily workings mystify most of us and so we depend on a cadre of highly trained elites to control and appease our various technologies. Not surprisingly, we treat them as elites have been treated throughout history: we admire them while simultaneously belittling or resenting them. Whether the elites are Hollywood producers, New York media owners, newspaper editors, or computer programmers, we fear the power of the technology they control and we resent the ways that we have lost power over our lives to the technology. But no matter how uncomfortable we feel, no matter how much we want to rebel, we find ourselves so enmeshed in technology and technique that there is no escape. We find ourselves ambivalent: living becomes easier while it becomes less our own.

Perhaps some of the ambivalence, the conflicting feelings in us arises from our association of technology with change. Within

the lifetime of my grandmother, the United States moved from the invention of the telephone to landing astronauts on the moon. Think, for example, of how the convergence of communication and computer technology has changed the way we do things. Computers have affected the way people work at their jobs, even in such a simple thing as having most workers and managers prepare their own documents rather than relying on a typing pool. Computers change interaction patterns by allowing direct and speedy contact with people throughout an organization via e-mail. Spreadsheets have introduced a kind of decision-making impossible five years earlier. Probably the biggest change in the United States occurred with the advent of television. The average person's schedule now accommodates three to four hours of television a day. And now another video technology (the VCR) allows people to shift time by recording and playing programs when they want. New technologies also affect time in a different way by speeding our perceptions up. People expect to do more and to have things happen faster: the telegraph and telephone began the expectation of instant communication at a distance; today, computers continue that tradition. All contribute to our impatience.

Technological change affects the groups that define our lives. Primary and secondary groups are more flexible. Communication technology allows close contact even where face-to-face meeting is impossible. Our world simultaneously expands and shrinks: though our groups can span the world and we can maintain daily contact, we may end up dealing only with like-minded friends, those we choose rather than those we encounter. Interestingly, the same technology that facilitates that mediated contact can lead to personal isolation as people give priority to mediated communication—we answer the phone rather than continuing to talk to the person standing in front of us.

In contemporary society, capitalism and technology have entered into an unshakable alliance. The market-based system of raising capital and developing technology leads to a system in which the two reinforce each other and prevent many from full participation. John Staudenmaier notes elsewhere in this magazine that "those with access to the venture capital that new technologies always require tend to be people who hold cultural hegemony in their society." Thus the capitalist-technological model more likely excludes people than includes them. It reinforces the existing order of society by increasing the established flow of profits and capital—and the messages that these technologies send echo those values as well.

Technology also has close links to consumerism. Major economic booms in recent United States history have been led by consumer desire for new technologies: the automobile and later the radio in the early twentieth century, televisions and household appliances after the second World War, and VCRs, fax machines, computers, and software today. The advertising industry, which itself embodies the technological attitude, helps fuel the perceived need for these products and—as is clearly evident in computer-related materials—even for products that do not yet exist. The recent release of Microsoft's Windows '95 operating system provides a fine case study of the consumerist mentality at work. That campaign also demonstrates how business has adapted to marketing; what Ellul called the technological attitude develops a strategy that needs consumerism.

A number of studies also have noted an association between some current technologies, including computers, and sexism. Some claim that over sixty-six percent of Internet users are male—and that figure has only recently dropped from eighty percent. In schools, boys feel more comfortable with computers, are more likely to use them (and dominate available time), and are more likely to take charge of them. An even less-welcome development is the linkage of new communication technologies and pornography. A large and growing number of Internet sites and computer bulletin boards feature pornography. Early computer CD-Rom catalogues featured as many adult-only rated products as all other kinds combined.

Finally, many people find modern technology vaguely unsettling because of the deep linkages between a technological mindset and weapons of mass destruction. Many of our most pervasive technologies—from the radio to the Internet—were originally developed for military purposes, a fact that reminds us how easily *"la technique"* can focus its efficiency on death.

For all of these reasons and more, we are profoundly uncomfortable with technology. But is technology the problem? How else might we explain these reactions? Perhaps we react to our technology as we do because we see ourselves in it. We may not often directly advert to the fact, but our technology is ourselves. We have created technology—these extensions of ourselves—in our image and likeness. Our technologies form a mirror in which we perceive our own culture, our values, and our dreams. Staudenmaier explains the process:

> Human beings with their tangled motives decide which designs are attended to and which ignored. Real people, commanding the limited resources of the working world, decide which technologies will be invested in and why they take the final shape they do . . . .
>
> Every technology embodies some distinct set of values. To the extent that a technology becomes successful within its society, its inherent values will be reinforced.

By incorporating our values, our technology shows us who we long to be. At the same time, it forms us, as generation after generation adopts particular technologies and the values they symbolize. This perspective can help us better to understand both the technology and the ambivalence we have towards it.

Technology extends the good and the bad in us. In technology's power we see ourselves as gods. In technology's potential for destruction or for trampling individual rights, we see our demonic side. When we separate technology from ourselves, we make it more frightening because we have made it less accountable. And so we come to another series of paradoxes. Technology is a human product, an extension of ourselves, but we perceive it as somehow foreign to us and responsible for a growing loss of humanity. It is part of us, but we perceive it as other. It carries our values, but we perceive it as variously value-free or demonic. It is symbolically rich, but appears to us as just another part of the environment.

The Technological Challenge

lies in how we deal with it. We must hold it firmly and maybe even a bit suspicious-

ly—as we would any powerful symbol. Then we can employ it, but it will not work for us unless we respect ourselves as much as we respect it.

The best educational response to the challenge of technology lies in modeling for our students ways to encounter technology. We should reflect on our own experiences of technology: do we take it for granted? does it frighten us? inspire us? is it simply a tool? a gadget? could it become a partner in a dialogue about humanness? I propose that we engage technology from a values-based position, one that finds expression in the mission statements of our schools—"the education of the whole person within the Catholic and Jesuit tradition." What might that mean?

First, technology should be part of our teaching. Others have already written volumes about the ways in which we can integrate technology, so let me note only a few things here. Educational technologies—video, satellite broadcasts, computers, display devices, telephones, and the like—provide added value in the classroom. At minimum, these things can help illustrate concepts and lead students to understanding. They can bring a variety of people and points of view into the classroom. They can foster learning by giving students different ways to wrestle with subject matter. They can encourage greater use of differing abilities, competencies, and ways of learning. They can put students in touch with literally world-wide information sources.

Educational technologies, particularly communication technologies, suggest alternative models of learning. They can promote collaborative learning by establishing learning communities where students and faculty can exchange ideas in places beyond the traditional classroom or office—through computer bulletin boards, voicemail systems, Internet chat groups, or web pages. Networks of colleagues expand beyond the classroom or hallway to encompass the globe—why not include the twenty-eight Jesuit colleges and universities in the United States, or the 112 Jesuit universities around the world?

Second, the technology itself should play a revelatory role. Each new technology casts prior technologies from their privileged (and often taken-for-granted) position. They allow us to see the bias and the values operating as part of the "normal" world. For example, film, television, computer texts, and hypertext clearly show us the limitations and the bias of print. As Walter Ong and others have shown so clearly, we have long favored the verbal and the linear—so much so that we equate a print culture with a learned culture. The new technologies should lead us in a worthwhile exercise of questioning: in a print culture, which is more valuable, the culture or the print?

Technology reveals more than the bias of learning. It reveals the values of a nation or culture. It reveals economic alliances and political alignments. Why not interrogate technology in the same way we interrogate other aspects of culture—novels, poems, plays, art, film, music? The finely honed tools of the humanist, the scientist, the engineer, the economist can and should be turned to technology as well as to those other sites where we discover our humanness.

Third, any use of technology should always lead to reflection on key questions for our society, from policy issues to human issues. By making this reflection habitual, we can more consciously give technology a place across the curriculum. The questions posed by technology are as valid in a philosophy course as

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in a physics course. They are as central to literature, theater, and art as they are to the laboratory sciences. For example, technologies have promoted both authority and autonomy. Is there any link between the way we fashion the boundaries of our social interaction and our technologies? How is it that technology creates both a mass society and gives people the ability to create a personal (virtual) world? Why does so much popular culture vilify technology?

We and our students should ponder the technical attitude and the ways in which we have internalized it. Does it narrow our perception of the world? Does it lead us to overgeneralize the technical solution so that we apply technology even to those things and places in the soul where it is inappropriate? In our schools and among our colleagues we have a structure of value that can counterbalance the technical attitude and enrich us.

We might also reflect on the connections among technology, politics and business ownership, on the role of elites in the development of technology, and on specific issues of justice—the distribution of power, access to new technology, skills training, concerns for privacy, and so on.

And so, the final paradox: As members of Jesuit schools, we would do students an injustice if we did not teach technology, teach with technology, or reflect on technology. But when we do, we must be aware that if we teach technology and teach with technology, we implicate our students in a larger problem of social justice. They, like us, will take a privileged role in an unjust world. Perhaps they will feel a responsibility for the world. Perhaps they will merely become good technicians. The choice is ours.

The challenge of technology for Jesuit schools is to integrate technology, compassion, conscience, community, and the depths of becoming human.

And so, more than an invisible, transparent glass, more than a clouded mirror, technology must become a metaphor, storing human knowledge and values while translating an image of ourselves from one mode to another. To understand ourselves, we would do well to understand our technology.

Works Cited

Ellul, Jacques. *The Technological Bluff*. Translated by G. W. Bromiley. Grand Rapids, Michigan: William B. Eerdmans, 1990.

Hall, Edward. *The Silent Language*. Greenwich, Connecticut: Fawcett, 1959.

McLuhan, H. Marshall. *The Gutenberg Galaxy*. New York: Signet, 1969.

Ong, Walter J., S.J. *Rhetoric, Romance, and Technology*. Ithaca: Cornell University Press, 1971.

Ong, Walter J., S.J. *Orality and Literacy: The Technologizing of the Word*. New York: Methuen, 1982.

Staudenmaier, John M., S.J. "'Technology': Reading the Signs of the Times". *Conversations*, no. 9 (Spring 1996).

TECHNOLOGY

EXTENDS

THE GOOD

AND THE BAD

IN US.

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