Technology and Literacy: A Story about the Perils of Not Paying Attention

Technological literacy—meaning computer skills and the ability to use computers and other technology to improve learning, productivity and performance—has become as fundamental to a person’s ability to navigate through society as traditional skills like reading, writing and arithmetic. In explicit acknowledgment of the challenges facing the education community, on February 15, 1996, President Clinton and Vice President Gore announced the Technology Literacy Challenge envisioning a 21st century where all students are technologically literate. The challenge was put before the nation as a whole, with responsibility shared by local communities, states, the private sector, educators local communities, parents, the federal government, and others.

-Getting America’s Students Ready for the 21st Century (5)

We know, purely and simply, that every single child must have access to a computer....

-Bill Clinton, qtd. in Getting America’s Students Ready for the 21st Century (4)

Cynthia L. Selfe is professor of composition and communication, and Chair of the Humanities Department at Michigan Technological University. She is currently the Chair of the CCCC. This essay, first presented as her 1997 Chair’s Address to the Chicago CCCC, grew out of her longstanding exploration of issues located at the intersection of technology, education, literacy, class, race, and gender. A longer monograph, Technology and Literacy in the 21st Century: The Perils of Not Paying Attention, will be published as part of the CCCC Series in Writing and Rhetoric in 1999. Selfe is the first woman and the first composition scholar to have won the EDUCOM medal, and she is a founding editor and continuing co-editor, with Gail Hawisher, of Computers and Composition: An International Journal for Teachers of Writing.
A central irony shaping my experience with the CCCC as a professional organization goes something like this: I consider it a fortunate occurrence and a particular point of pride that many of the best ideas about teaching and learning writing, the most powerfully explanatory theoretical insights about language and discourse and literacy that inform education today, grow directly out of conversations among CCCC members. Given this situation, however, I find it compellingly unfortunate that the one topic serving as a focus for my own professional involvement—that of computer technology and its use in teaching composition—seems to be the single subject best anted to inspire glazed eyes and complete indifference in that portion of the CCCC membership which does not immediately sink into snooze mode.

This irony, I am convinced, has nothing to do with collegial good will. CCCC colleagues have been unerringly polite in the 17 years of discussions we have had about technology. After all this time, however, I can spot the speech acts that follow a turn of the conversation to computers—the slightly averted gaze, the quick glance at the watch, the panicky look in the eyes when someone lapses into talk about microprocessors, or gigabytes, or ethernet. All these small potent gestures, as Michel de Certeau would say, signify pretty clearly-technology is either boring or frightening to most humanists; many teachers of English composition feel it antithetical to their primary concerns and many believe it should not be allowed to take up valuable scholarly time or the attention that could be best put to use in teaching or the study of literacy. I have, believe me, gotten the message— as subtle as it is.

These attitudes toward technology issues, of course, aren’t shared by everyone in this organization—there are pockets of technology studies scholars and teachers here and there among us; notable occasions when an individual CCCC leader does speak about technology; and, every now and again, a professional conversation among us about the array of challenges associated with technology. These occasions remain exceptions, however, and anybody familiar with the values of traditional humanism knows that, as a group, we tend to hold in common a general distrust of the machine, that a preference for the non-technological still characterizes our community.

Our tendency to avoid focusing on the technological means that—while we are tolerant of those colleagues interested in the “souls of machines,” to use Bruno Latour’s term—we assign them to a peculiar kind of professional isolation “in their own separate world” of computer sessions and computer workshops and computers and writing conferences that many CCCC members consider influenced more by the concerns of “engineers, technicians, and technocrats” (vii) than those of humanists. It is this same set of historically and professionally determined beliefs, I think, that informs our actions within our home departments, where we generally continue to allocate the responsibility of technology decisions—and often-times the responsibility of technology studies—to a single faculty or staff member who doesn’t mind wrestling with computers or the thorny, and the unpleasant issues that can be associated with their use. In this way, we manage to have the best of both worlds—we have computers available to use for our own studies, in support of our classes and our profession—but we have also relegated these technologies into the background of our professional lives. As a result, computers are rapidly becoming invisible, which is how we like our technology to be. When we don’t have to pay attention to machines, we remain free to focus on the theory and practice of language, the stuff of real intellectual and social concern.

Why We Allow Ourselves to Ignore Technology

As humanists, we prefer things to be arranged this way because computer technology, when it is too much in our face (as an unfamiliar technology generally is), can suggest a kind of cultural strangeness that is off-putting. We are much more used to dealing with older technologies like print, a technology conventional enough so that we don’t have to think so much about it, old enough so that it doesn’t call such immediate attention to the social or material conditions associated with its use. Books, for example, are already and always—almost anyway-there. At this point in history, books are relatively cheap, they are generally accessible to students and to us, and they are acknowledged by our peers to be the appropriate tools of teaching and learning to use. As a result, our recognition of the material conditions associated with books have faded into the background of our imagination. Thus, although we understand on a tacit level that the print technology in which we invest so readily (and in which we ask students to invest) contributes to our own tenure and promotion, to our own wallets, and to our own status in the profession and in the public eye—this understanding is woven into the background of our professional attention, and we seldom pay attention to it on a daily basis. If we did, we’d go mad.

There are other things that don’t occur to us, as well. When we use the more familiar technology of books, for instance, it is mostly within a familiar ideological system that allows us to ignore, except for some occasional twinges of conscience, the persistence of print and our role in this persistence. It allows us to ignore the understanding that print literacy functions as a cultural system—as Lester Faigley noted two years ago—not only to carry and distribute enlightened ideas, but also as a seamless whole to support a pattern of continuing illiteracy in this country.

I provide this example to suggest that composition studies faculty, educated in the humanist tradition, generally prefer our technologies and
the material conditions associated so closely with them to remain in the background for obvious reasons, and the belief systems we construct in connection with various technologies allow us to accomplish this comfortable process of naturalization.

In the case of computers—we have convinced ourselves that we and the students with whom we work are made of much finer stuff than the machine in our midst, and we are determined to maintain this state of affairs. This ideological position, however, has other effects; as well. As a result of the inverse value we generally assign to discussions about computers, our professional organizations continue to deal with technology in what is essentially a piecemeal fashion. We now think of computers, for instance, as a simple tool that individual faculty members can use or ignore in their classrooms as they choose, but also one that the profession, as a collective whole—and with just a few notable exceptions—need not address too systematically. And so we have paid technology issues precious little focused attention over the years.

Why Composition Specialists Need to Pay Attention to Technology Issues

Allowing ourselves the luxury of ignoring technology, however, is not only misguided at the end of the 20th century, it is dangerously shortsighted. And I do not mean, simply, that we are all each of us—now teaching students who must know how to communicate as informed thinkers and citizens in an increasingly technological world—although this is surely so. This recognition has led composition faculty only to the point of using computers—or having students do so—but not to the point of thinking about what we are doing and understanding at least some of the important implications of our actions.

I believe composition studies faculty have a much larger and more complicated obligation to fulfill—that of trying to understand and make sense of, to pay attention to, how technology is now inextricably linked to literacy and literacy education in this country. As a part of this obligation, I suggest that we have some rather unpleasant facts to face about our own professional behavior and involvement. To make these points more persuasively, I offer a real-life story about what has happened in American schools and literacy instruction as a result of our unwillingness to attend to technological issues.

An honest examination of this situation, I believe, will lead composition studies professionals to recognize that these two complex cultural formations—technology and literacy—have become linked in ways that exacerbate current educational and social inequities in the United States rather than addressing them productively. The story will lead us to admit, I believe, that we are, in part, already responsible for a bad—some a shameful—situation, and, I hope, will inspire us to do something more positive in the future.

I’ll provide readers the moral of this story up front so that no one misses it. As composition teachers, deciding whether or not to use technology in our classes is simply not the point—we have to pay attention to technology. We, when we fail to do so, we share in the responsibility for sustaining and reproducing an unfair system that, scholars such as Elspeth Stuckey and Mike Rose have noted in other contexts, enacts social violence and ensures continuing illiteracy under the aegis of education.

I know, however, that it is not easy for composition teachers to pay attention to technology. As Anthony Giddens would say, our tendency to ignore technology—to focus on humans rather than on machines—is “deeply sedimented” (22) in our culture, in the history of our humanist profession. And the sedimentation of this belief system is so deep that it has come to comprise a piece of what Pierre Bourdieu might call doxa (166)—a position everyone takes as much for granted, is so obvious, that people no longer even feel the need to articulate it. But by subscribing to this attitude, we may also be allowing ourselves to ignore the serious social struggles that continue to characterize technology as a cultural formation in this country.

Nowhere are these struggles and debates rendered in more complex terms in the United States—and nowhere are they more influential on our own work than they are in the link between literacy and computer technology that has been established in increasingly direct ways over the last decade. This potent linkage is sustained and reproduced by a complexly related set of cultural influences: workplaces in which approximately 70% of jobs requiring a bachelor’s degree or an advanced college degree now require the use of computers (Digest of Education Statistics 458); a corporate sector focused on exploiting the 89% of “teachers and the public” who believe that the Internet adds value to teaching and learning specifically because it “reduces the costs teachers spend on classroom activities” (“MCI Nationwide Poll”); schools in which 87% of high school students are now writing on computers by Grade 11 (Coley, Crandler, and Engle 27); and homes in which 86% of parents are convinced that a computer is the one “most beneficial and effective product that they can buy to expand their children’s opportunities for education, future success, and economic prosperity (Getting America’s Student’s Ready 10).

The tendential force generated by these complexly related formations—which magnify our country’s economic dependence on technology—is considerable. However, because it is always easier to ascribe responsibility for such a situation to others—to blame the greed of the corporate...
representatives who sell computers, or the blindness of school administrators who mandate the use of computers, or the shortsightedness of parents who consider technology a guarantor of learning for their children, I want to focus primarily on our own professional roles and responsibilities associated with this social dynamic.

It is, after all, partly a result of the involvement of English composition specialists, or lack of involvement, in some cases, that the linkage between literacy and technology has come to inform most of the official instruction that goes on within the United States’ educational system, most official definitions and descriptions of literacy featured in the documents we write and read, and many of the criteria used to gauge literacy levels within this country. Few government documents about educational goals; few documents outlining national or state educational standards, including our own NCTE standards document; and few corporate job descriptions now fail to acknowledge a citizen’s need to read, write, and communicate in electronic environments.

And certainly, like most Americans, we have not felt a responsibility to involve ourselves directly in some of the more public discussions about technology and educational policy because many of us unconsciously subscribe to a belief—both culturally and historically determined—that technology is a productive outgrowth of Science and Innovation (cf. Winner; Virilio; Feenberg; Johnson-Eilola). As a result, we take comfort when the linkage between literacy and computer technology is portrayed as a socially progressive movement, one that will benefit American citizens generally and without regard for their circumstances or backgrounds. Such a belief releases us from the responsibility to pay attention.

It is this last point, however, that makes the American cultural narrative about technology and literacy a particularly potent force in our lives, and that provides a jumping off point for our real-life story about technology.

An American Narrative about Computer Technology and Its Growing Links to Literacy Instruction

This story about technology and literacy could be dated by any number of historical events, but for the purposes of this paper, we turn to the June of 1996, when the Clinton-Gore administration—with direct reference to the larger cultural narrative of social-progress-through-technology that I have just identified—published a document entitled *Getting America’s Children Ready for the Twenty-First Century*, which announced an official national project to expand *technological literacy*, the “ability to use computers and other technology to improve learning, productivity and performance” (5).

The purpose of this large-scale project—as outlined by Secretary of Education Richard Riley—was, and is, to help “all of our children to become technologically literate” so that each “will have the opportunity to make the most of [his or her] own life,” to “grow and thrive” within the “new knowledge-and information-driven economy” (3-4). By “technologically literate,” this document refers to the use of computers not only for the purposes of calculating, programming, and designing, but also for the purposes of reading, writing, and communicating (15-19)—at least for the officially-sponsored academic tasks required in schools across the country.

Estimates indicate that this particular literacy project may cost up to $109 billion dollars—averaging either $11 billion annually for a decade or between $10 and $20 billion annually for five years—from a variety of sources at the national, state, and local levels (*Getting America’s Students Ready*, 6). Where has this money come from and where has it gone? As Todd Oppenheimer notes:

New Jersey cut state aid to a number of school districts this past year and then spent $10 million on classroom computers. In Union City, California, a single school district is spending $27 million to buy new gear for a mere eleven schools. In Mansfield, Massachusetts, administrators dropped proposed teaching positions in art, music and physical education, and then spent $333,000 on computers. (46)

Secretary of Education Richard Riley, in *Getting America’s Students Ready*, lists other funded projects from various states—here is a sampling:

**California**

- $279 million (one time, State Board) for “instructional materials, deferred maintenance, technology...”
- $13.4 million (State Board) for educational technology.
- $10 million (State budget) to “refurbish and update used or donated computers.”
- $100 million (current year, Governor Wilson) for “educational technology.”
- $35 million (Pacific Telesis) for rate overcharges. (60)

**Delaware**

- $30 million (State, three years) to fund “infrastructure initiative.” (61)

**District of Columbia**

- $9 million for “hardware and software purchases.” (61)

**Idaho**

- $10.4 million (Idaho Educational Technology Initiative) for “technology in the classroom.” (62)
Since 1996, although our professional standards documents now reflect the core values of this project in that they assume the necessity of computer use by communicators in the 21st century, they do not provide adequate guidance about how to get teachers and students thinking critically about such use. Moreover, in a curious way, neither the CCCC, nor the NCTE, nor the MLA, nor the IRA—as far as I can tell—have ever published a single word about our own professional stance on this particular nationwide technology project: not one statement about how we think such literacy monies should be spent in English composition programs; not one statement about what kinds of literacy and technology efforts should be funded in connection with this project or how excellence should be gauged in these efforts; not one statement about the serious need for professional development and support for teachers that must be addressed within the context of this particular national literacy project.

Nor have these organizations articulated any official or direct response to the project’s goals or the ways in which schools and teachers are already enacting these goals within classrooms. And this is true despite the fact that so many literacy educators in a range of situations—including all English and Language Arts teachers in primary, secondary, and college/university classrooms—have been broadly affected by the technology-literacy linkage for the past decade and will continue to be so involved well into the next century.

In other words, as members of these professional organizations, we need to do a much better job of paying critical attention to technology issues that affect us. Now why is this particular task so important? By paying critical attention to lessons about technology, we can re-learn important lessons about literacy. It is the different perspective on literacy that technology, in connection with this project or how excellence should be gauged in these efforts; not one statement about the serious need for professional development and support for teachers that must be addressed within the context of this particular national literacy project.

And we are already in the midst of this project—the administration’s deadline for creating such a technologically literate citizenry, one that will think of official, school-sponsored literacy practices as occurring primarily in technological contexts, is “early in the 21st century” (Getting America’s Children Ready 3).

This project, and the extensive influence it has had on our national understanding of officially-sponsored literacy practices, is a phenomenon that deserves close study not only because of the considerable attention that individual teachers and school districts around the country have already paid to its goals, but, interestingly and conversely, because of the utter lack of systematic and considered attention that our profession as a whole and our professional organizations have accorded it. And so I will move the story forward a bit more.

Maine

$15 million (Governor) to “establish a distance learning network.” (63)

Montana

$2.56 million (NSF) to support “SummitNet”

$100,000 (State) “for technology” (65)

Texas

$150 million (State, Telecommunications Infrastructure Fund)

$30/student (State) for “purchasing electronic textbooks or technological equipment... , training educational personnel directly involved in student learning... , access to technological equipment.” (67)

Wisconsin

$10 million (State) for “improve[d] access to advanced telecommunications and distance education technologies.” (68)

[Telecommunications providers] have provided unidentified funds for Advanced Telecommunications Foundation. (68)

In comparison to the miserly federal funding this country is allocating to other literacy and education projects, these amounts stagger the imagination.

To put these expenditures for technology into perspective, we can look at the 1999 budget for the Department of Education that President Clinton has recently sent to the United States Congress. In this budget, the President has requested $721 million of direct federal funding for educational technology but less than half of that amount, $260 million, for the America Reads Challenge and less than one-tenth of that amount, $67 million, for teacher recruitment and preparation (Community Update, No. 56, p. 3).

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Scholars such as Brian Street, Harvey Graff, and James Paul Gee note that such claims are not unusual in connection with large-scale, national literacy projects. Indeed, our willingness to believe these claims contributes to the potency of what Graff has called the “literacy myth,” a widely held belief that literacy and literacy education lead autonomously, automatically, and directly to liberation, personal success, or economic prosperity. This myth, however, is delusory in its simplicity, as Street says:

The reality [of national literacy movements] is more complex, is harder to face politically... when it comes to job acquisition, the level of literacy is less important than issues of class, gender, and ethnicity; lack of literacy is more likely to be a symptom of poverty and deprivation than a cause. (18)

In the specific case of the project to expand technological literacy, the claim is that a national program will provide all citizens equal access to an improved education and, thus, equal opportunity for upward social mobility and economic prosperity. If we pay attention to the facts surrounding the project’s instantiation, however, we can remind ourselves of the much harder lesson: in our educational system, and in the culture that this system reflects, computers continue to be distributed differentially along the related axes of race and socioeconomic status and this distribution contributes to ongoing patterns of racism and to the continuation of poverty.

It is a fact, for instance, that schools primarily serving students of color and poor students continue to have less access to computers, and access to less sophisticated computer equipment than do schools primarily serving more affluent and white students (Coley et al. 3). And it is a fact that schools primarily serving students of color and poor students continue to have less access to the Internet, less access to multimedia equipment, less access to CD-ROM equipment, less access to local area networks, less access to videodisc technology than do schools primarily serving more affluent and white students (Coley et al. 3). This data, which is profoundly disturbing, becomes all the more problematic if we trace the extended effects of the technology-literacy linkage into the country’s workplaces and homes. There, too, the latest census figures indicate, the linkage is strongly correlated to both race and socioeconomic status. It is a fact, for instance, that Black employees or Hispanic employees are much less likely than white employees to use a range of computer applications in their workplace environments (Digest 458). It is also a fact that employees who have not graduated from high school are much less likely to use a range of computer applications than are employees who have a high school degree or have some college experience (Digest 458). And it is a fact that poor families in both urban and rural environments and

Black and Hispanic Americans are much less likely to own and use computers than individuals with higher family incomes and white families (Condition 2 12; Digest 1996 458; Getting 36).

In other words, the poorer you are and the less educated you are in this country—both of which conditions are correlated with race—the less likely you are to have access to computers and to high-paying, high-tech jobs in the American workplace.

The challenges associated with the unequal distribution and use of computer technology along the related axes of socioeconomic status, education, and race have proven embarrassingly persistent for a number of related reasons. Secretary of Education Richard Riley, for example, citing a 1995 General Accounting Office Survey, notes that

half of all schools do not have adequate wiring (such as outlets) to handle their technology needs. More than half do not have sufficient telephone lines, and 60 percent consider the number of conduits for network cable unsatisfactory. Schools that have all of these infrastructure elements are clearly the exception to the rule. Strikingly, schools in large central cities are even less equipped to meet the demands of technology than other schools; more than 40 percent do not even have enough electrical power to use computers on a regular basis... Classrooms in older buildings, for example, may require expensive renovations to improve electrical systems before computers and networks can be installed, discouraging the community from making a commitment. (Getting America’s Children Ready 34-35).

As a result of this overdetermined system, the differential distribution of technology and technological literacy continues—albeit, with some complex new variations. In a recent article published in Science, for example, Hoffman and Novak identified the following findings:

- Overall whites were significantly more likely than African Americans to have a home computer in their household. Whites were also slightly more likely to have access to a PC at work. (390)
- Proportionately, more than twice as many whites as African Americans had used the Web in the past week. As of January 1997, we estimate that 5.2 million (± 1.2 million) African Americans and 40.8 million whites (± 2.1 million) have ever used the Web, and that 1.4 million (± 0.5 million) African Americans and 20.3 million (± 1.6 million) whites used the Web in the past week. (390)
- As one would expect... increasing levels of income corresponded to an increased likelihood of owning a home computer, regardless of race. In contrast, adjusting for income did not eliminate the race differences with respect
to computer access at work. . . . Notably, race differences in Web use vanish at household incomes of $40,000 and higher. (390)

- 73% of white students owned a home computer, only 32% of African American students owned one. “This difference persisted when we statistically adjusted for students’ reported household income.” (390)

- White students were significantly more likely than African American students to have used the Web, especially in the past week. (391)

- White students lacking a home computer, but not African American students, appear to be accessing the Internet from locations such as homes, friends and relatives, libraries, and community centers. (391)

Acknowledging these facts, we might understand better why the rhetoric associated with national literacy projects serves to exacerbate the dangers that they pose. When Secretary of Education Richard Riley states, for example, that “Computers are the ‘new basics’ of education...” or that the project of technological literacy can help us give “all of our young people” an “opportunity to grow... and thrive” in the “new knowledge- and information-driven economy” (Getting 3), he erroneously suggests, in Brian Street’s words, “that the acquisition of literacy” will by itself “lead to ‘major’ impacts in terms of social and cognitive skills and ‘development’” within a population (14). As Street reminds us, these “simple stories” that “both politicians and the press” tell about literacy to justify and sustain the momentum of such major programs, frequently “deflect attention from the complexity and real political difficulties” (17). The ultimate effect, according to Street, is an overly narrow understanding of literacy—usually in terms of a single official literacy—and the development of accompanying “patronizing assumptions about what it means to have difficulties with reading and writing in contemporary society. Such rhetoric also serves to raise false hopes about what the acquisition of literacy means for job prospects, social mobility, and personal achievement” (17).

In the specific case of computers and literacy, these stories serve to deflect our attention from the fact that “every single child” does not now have access to technology, and some students, especially those who are poor and of color, have less access than others. And so, if access to and use of technology in school-based settings is now a fundamental skill of literacy and if such skills do help prepare graduates for the jobs they will be asked to do, these same students can expect less opportunity to assume high-tech and high-paying jobs, not more. As Richard Ohmann described the underlying dynamic in a prescient 1985 College English article about the general relationship between technology, literacy, and economic conditions:

Of course there will be more jobs in the computer field itself. But... the field is layered into specialties, which will be dead ends for most people in them... Graduates of MIT will get the challenging jobs; community college math-grads will be technicians; those who do no more than acquire basic skills and computer literacy in high school will probably find their way to electronic workstations at McDonald’s. I see every reason to expect that the computer revolution, like other revolutions from the top down, will indeed expand the minds and the freedom of an elite, meanwhile facilitating the degradation of labor and the stratification of the workforce that have been hallmarks of monopoly capitalism from its onset. (683)

The frustrating cycle associated with this situation is so dismally clear and sickeningly familiar because it mirrors exactly the dynamics associated with more traditional literacy efforts in our country. As Graff notes, official literacies usually function in a conservative, and reproductive, fashion-in favor of dominant groups and in support of the existing class-based system:

Hegemonic relationships have historically involved processes of group and class formation, recruitment, indoctrination, and maintenance at all levels of society. For most of literacy’s history, these functions have centered upon elite groups and their cohesion and power. For them, the uses of literacy have been diverse but have included common education, culture, and language... shared interests and activities; control of scarce commodities, such as wealth, power, and even literacy; and common symbols and badges, of which literacy could be one. (Legacies 12)

Thus, the national project to expand technological literacy has not served to reduce illiteracy—or the persistent social problems that exacerbate illiteracy. Rather, it has simply changed the official criteria for both “literate” and “illiterate” individuals, while retaining the basic ratio of both groups.

In sum, we have little evidence that any large-scale project focusing on a narrowly defined set of officially sanctioned literacy skills will result in fundamental changes in the ratio of people labeled as literate or illiterate. These categories are socially constructed identities which our current educational system reproduces rather than addresses. Similarly, we have no specific evidence that the current project to expand technological literacy will change the patterns of literacy and illiteracy in this country. Rather, this project is likely to support persistent patterns of economically-based literacy acquisition because citizens of color and those from low socioeconomic backgrounds continue to have less access to high-tech educational opportunities and occupy fewer positions that make multiple uses of technology than do white citizens or those from higher socioeconomic backgrounds.
The administration knew well that its ability to address these problems and to inject new vigor into the domestic economy—or to convince the American public that it had done so—would be a deciding factor in the way the effectiveness of their administration was judged. On the international scene, the Clinton-Gore team faced three important and related changes in the world's economic picture: the end of the Cold War and the fall of Communism in the Soviet Union, the emergence of growing markets among the developing countries of East Asia and Latin America that threatened to capture an increasingly large percentages of the world's consumers, and the threatening increase in competition due to the global scope of the international economy.

To kill these two economic birds with one stone, the Clinton-Gore administration focused on the idea of expanding America's technology efforts—the design, manufacturing, and consumption of both technology and technological expertise. On the international scene, the administration took three steps to expand technology efforts. The first step involved defining America's focused area of specialization in the world marketplace as technology and information services:

The Administration's economic policy has been an aggressive effort to increase exports through the opening of markets abroad... The United States will certainly gain, both as a major exporter of information technology and as an importer, as American industries take advantage of new foreign technologies that will lower their costs and increase their productivity. (Economic Report 27)

The second and third steps involved exerting leadership in the development of a Global Information Infrastructure (GII) built on the back of the country's own National Information Infrastructure (NII). As part of this effort, the United States offered other countries—especially those with emerging markets that were hungry for technological involvement—the opportunity to buy American goods and services exported in connection with the GII. As Gore described the plan to the International Telecommunications Union in Buenos Aires in 1994:

We can use the Global Information Infrastructure for technical collaboration between industrialized nations and developing countries. All agencies of the U.S. government are potential sources of information and knowledge that can be shared with partners across the globe... The U.S. can help provide the technical know-how needed to deploy and use these new technologies. USAID and U.S. businesses have helped the U.S. telecommunications Training Institute train more than 3500 telecommunications professionals from the developing world, including many in this room.

Such a system also set up the possibility of continued reliance on American goods and services. Technicians trained in the deployment and use of American technology and American-designed operating systems, and American software, and American networks, for example, would tend to continue to rely on—and purchase—those products and components with which they were most familiar. Gore articulated the economic reasoning behind this plan:

For us in the United States, the information infrastructure already is to the U.S. economy of the 1990s what transportation infrastructure was to the economy of the mid-20th century.

The integration of computing and information networks into the economy makes U.S. manufacturing companies more productive, more competitive, and more adaptive to changing conditions... .

The benefits associated with the GII expansion had political as well as economic effects. If the GII was constructed according to the Clinton-Gore plan, it would not only re-vitalize the American economy, it would also help promote the spread of democracy and capitalism around the globe within the context of a liberalized global economic system. The GII would accomplish this goal by providing forums for democratic involvement and expanded freedom of speech, by increasing privatization of technology resources, and by decreasing government regulation. As Gore noted:
The GII will not only be a metaphor for a functioning democracy, it will in fact promote the functioning of democracy by greatly enhancing the participation of citizens in decision-making. And it will greatly promote the ability of nations to cooperate with each other. I see a new Athenian age of democracy forged in the forum the GII will create.

The international effort to expand technology, however, was only one part of the Clinton-Gore agenda. The other-and, in some ways, the more important-effort occurred in the domestic arena and focused on the revitalization of the American domestic economy through the expansion of the American computer industry. The Clinton-Gore team saw this particular industry as an economic “engine” (Global Information 3) that would, by increasing technological efforts at home, in turn, jump-start the international effort: providing the resources-the additional technology and the technological expertise-required to exploit emerging world markets.

To carry out this complex plan, the domestic engine of technology had to be cranked up and, to accomplish this goal, the Clinton-Gore administration knew that it had to accomplish two tasks:

- educate a pool of technologically sophisticated workers and technology specialists who could assist in the effort to reach new global markets and export more American manufactured equipment and specialized technology services to the rest of the world; and

- provide an influx of resources into the domestic computer industry so that it could simultaneously support the international effort and assume an increasingly important role in re-vitalizing the domestic economy.

And it was in response to these complexly related economic and political agenda that the national project to expand technological literacy was born. The dynamics that underlie this project were ideally and specifically suited to the economic and political goals we have just sketched out.

Touted as an educational effort designed to improve citizens’ literacy levels and, thus, their opportunities for future prosperity, the project was targeted at producing a continuing supply of educated workers who both had the skills necessary to design and manufacture increasingly sophisticated technological goods at home, and could offer sophisticated and specialized technological services in international arenas. Central to the task of achieving these targeted goals, the Clinton-Gore team recognized, was its ability to levy the power of the national educational system to reach large numbers of Americans in relatively short order. It was only within such a national system, they recognized, that an appropriately large proportion of the country’s population could quickly acquire the training necessary to boost high-tech industries.

Importantly, such a plan was pretty close to self-fueling-citizens who learned the habits of reading, writing, and communicating on computers early in their lives within high-tech schools, would tend to demand and consume such goods later in life when they graduated, thus injecting an increasingly continuous flow of money into the computer industry. And the plan’s effects in the public sector promised to resonate effectively with its effects in the private sector: when citizens used, or were exposed to, cutting-edge technologies in their workplaces, or in school settings, they would desire them, as well, in their homes-and they would purchase updated technologies more frequently. Further, to ensure the continuation of the same high-tech careers and industries that have served them so well, such citizens would also tend to vote in support of political and economic programs that involved the further expansion of technology markets both domestically and internationally. Such citizens, moreover, would recognize the key role that technological literacy plays in their own success, and, so, demand a similar education for their children.

From our perspective today, of course, we can see a darker side of this dynamic. The economic engine of technology must be fueled by-and produce-not only a continuing supply of individuals who are highly literate in terms of technological knowledge, but also a ongoing supply of individuals who fail to acquire technological literacy, those who are termed “illiterate” according to the official definition. These latter individuals provide the unskilled, low-paid labor necessary to sustain the system I have described-their work generates the surplus labor that must be continually reinvested in capital projects to produce more sophisticated technologies.

The people labeled as “illiterate” in connection with technology-as expected-are those with the least power to effect a change in this system. They come from families who attend the poorest schools in this country and they attend schools with the highest populations of students of color. In part because of such facts, these students have less access to technology,
in general, and less access to more sophisticated technology during their educational years. Partially as a result of their educational backgrounds, such individuals are hired into less desirable, lower-paid positions that demand fewer official technological literacy skills.

Moreover, because skills in technological communication environments are so closely linked with literacy instruction in general, and because students who come from such backgrounds are afforded the poorest efforts of the educational system and the lowest expectations of many teachers, the label of “illiterate” has broader implications for these individuals’ ability to acquire other skills through their formal schooling years.

Remembering Our Own Role in the Literacy/Illiteracy Cycle

The danger associated with such an extensive ideological system, as Terry Eagleton points out, is the effective processes of naturalization that it engenders. Successful ideological systems “render their beliefs natural and self evident” by so closely identifying them with “common sense” of a society so that nobody could imagine how they might ever be different (58). More importantly, as Eagleton continues,

This process, which Pierre Bourdieu calls doxa, involves the ideology in creating as tight a fit as possible between itself and social reality, thereby closing the gap into which the leverage of critique could be inserted. Social reality is redefined by the ideology to become coextensive with itself, in a way which occludes the truth that the reality in fact generated the ideology... The result, politically speaking, is an apparently vicious circle: the ideology could only become transformed if the reality was such as to allow it to become objectified; but the ideology processes reality in ways which forestall this possibility. The two are thus mutually self-confirming. On this view, a ruling ideology does not so much combat alternative ideas as thrust them beyond the very bounds of the thinkable. (58)

It is within this effectively naturalized matrix of interests, I would argue, that English teachers all over this country have become the unwitting purveyors of technology and technological literacy—even as we try to avoid a technological focus by attending to more traditionally conceived topics within the humanities.

The paradoxical dynamics at the heart of this situation are difficult to wrap our minds around especially because they function at so many different levels. Because we fail to address the project to expand technological literacy in focused, systematic, and critical ways within the professional arenas available to us, English composition teachers have come to understand technology as “just another instructional tool” that they can choose either to use or ignore. And, working from this context, we divide ourselves into two perfectly meaningless camps—those who use computers to teach classes and those who don’t. Both groups feel virtuous about their choices, and both manage to lose sight of the real issue. Computer-using teachers instruct students in how to use technology—but, all too often, they neglect to teach students how to pay critical attention to the issues generated by technology use. Teachers who choose not to use technology in their classes content themselves with the mistaken belief that their choice to avoid technology use absolves them and the students in their classes from paying critical attention to technology issues. In other words, both groups contribute to the very same end. And when such things happen, when we allow ourselves to ignore technological issues, when we take technology for granted, when it becomes invisible to us, when we forget technology’s material bases—regardless of whether or not we use technology—we participate unwittingly in the inequitable literacy system I have just described.

Paying Attention to Action

So can composition teachers address the complex linkages among technology, literacy, poverty, and race? The primary factors determining any individual’s involvement, of course, must necessarily start with the local and specific-with social agents’ own deep and penetrating knowledge of the specific colleges and universities in which they work; the particular families, communities, cultures within which we live and form our own understanding of the world; the individual students, teachers, administrators, board members, politicians, and parents whose lives touch ours.

As Donna Haraway reminds us, this kind of “situated knowledges—approach” (175) leads to a kind of “coyote” (189) way of knowing—one different from the traditional perspective of Science, but in that difference, capable of offering a “more adequate, richer, better account of the world” that makes it possible to “live in it well and in critical, reflexive relation to our own as well as others’ practices” (178). Such an approach may provide “only partial perspective” (181), Haraway cautions, but it allows us to avoid the trap of claiming a scientific objectivity that invites a false sense of closure and overly simple answers.

This kind of paying attention can serve as a collective effort to construct a “larger vision” of our responsibilities as a profession, one that depends on a strong sense of many somewheres (e.g., schools, classrooms, districts, communities) “in particular” (187)—especially when such a project is undertaken with a critical understanding of what we are trying to accomplish with such work and a collective commitment to seeing social problems “faithfully from another’s point of view” (181) and even when it is clear
that such a vision must remain partial, distorted, and incomplete. In this way, our profession can assemble, from many local understandings “stitched together imperfectly” (183), a picture of technological literacy-as it now functions within our culture-that might allow us to act with more strategic effectiveness and force, both collectively and individually.

A situated knowledges-approach to paying attention also honors a multiplicity of responses to technological literacy. Given, the constraints of local and specific contexts, and a commitment to engaging with the lives of individual students, for example, some teachers will find their best avenue of involvement to reside in individual agency, others will find increasing effectiveness when they work with other colleagues. Some educators will find work within their own classroom to be the most immediately pressing and others will find the action in local communities to offer the most immediate and successful venue for their work. Indeed, the appreciation of local situations and variations may help composition studies professionals understand the power of large-scale projects when they are built on the critical understandings and active participation of a diverse group of educators.

Operating from this understanding of the local and particular, suggestions for critical engagement with technological literacy issues must allow for wide variations in social, political, economic, and ideological positionings, and wide variations in teachers, students, administrators, citizens, and communities. In deference to this approach, the suggestions that follow focus on the typical sites for critically informed action on technological literacy (and on general areas of attention within such sites) rather than on specific projects that should be undertaken within these sites. Individual teachers and groups of teachers, students, parents, and school administrators must determine within such sites how best to pay increased and critical attention to the linkage between technology and literacy-recognizing as fully as possible the local conditions affecting the work they do.

In Curriculum Committees, Standards Documents, and Assessment Programs

We need to pursue opportunities for resisting projects and systems that serve to establish an overly narrow, official version of literacy practices or skills. Such projects and systems simply serve to reward the literacy practices of dominant groups and punish the practices of others. They serve to reproduce a continuing and oppressive cycle of illiteracy, racism, and poverty in this country and in others.

Within these venues, composition specialists can lead the way in insisting on a diverse range of literacy practices and values, rather than one narrow and official form of literacy. We have made a start at this effort in the 1996 NCTE Standards for the English Language Arts, but CCC needs to go much further in helping both future teachers and those already in classrooms understand why this work is so important and what implications their successes and failures may have.

In Our Professional Organizations

We need to recognize that if written language and literacy practices are our professional business, so is technology. This recognition demands a series of carefully considered and very visible professional stands on a variety of technological issues now under debate in this country: for example, on the access issues we have discussed, on the issue of technology funding for schools, on the issue of multiple venues for students’ literacy practices, on the national project to expand technological literacy, and so on. We need to engage in much more of this kind of professional activism, and more consistently.

In Scholarship and Research

We also need to recognize that technological literacy is our responsibility. We need not only additional examinations of the ideological systems and cultural formations currently informing the literacy-technology link, but also the historical patterns established by other literacy technologies. And we need research like that Regina Copeland has just completed in West Virginia that takes a hard look at the access that individuals in various population groups-students of color, poor students, women-have to computer-supported literacy instruction, and of the expenditure of government and schools and family funds in support of technology and literacy. We also need additional research on how various technologies influence literacy values and practices and research on how teachers might better use technologies to support a wide range of literacy goals for different populations. We need work like that Nancy Guerra Barron has completed in LA to examine the bilingual online discussions of Latino students in a Chicano studies class and trace the ways in which these students manage to shape and use electronic environments productively to mirror the linguistic richness of their lives outside the classroom. These projects represent only some of the many that we can encourage.

In Language Arts and English Studies Classrooms, and in First-Year and Advanced English Composition Courses

We need to recognize that we can no longer simply educate students to become technology users—and consumers-without also helping them learn
how to become critical thinkers about technology and the social issues surrounding its use. When English/language arts faculty require students to use computers in completing a range of assignments—without also providing them the time and opportunity to explore the complex issues that surround technology and technology use in substantive ways—we may, without realizing it, be contributing to the education of citizens who are habituated to technology use but who have little critical awareness about understanding of, the complex relationships between humans, machines, and the cultural contexts within which the two interact.

Composition teachers, language arts teachers, and other literacy specialists need to recognize that the relevance of technology in the English studies disciplines is not simply a matter of helping students work effectively with communication software and hardware, but, rather, also a matter of helping them to understand and to be able to assess—to pay attention to—the social, economic, and pedagogical implications of new communication technologies and technological initiatives that affect their lives. Knowledgeable literacy specialists at all levels need to develop age-appropriate and level-appropriate reading and writing activities aimed at this goal. This approach—which recognizes the complex links that now exist between literacy and technology at the end of the twentieth century—constitutes a critical technological literacy that will serve students well.

In Computer-Based Communication Facilities

We have to put scholarship and research to work as praxis. These technology-rich facilities can serve not only as teaching environments for students completing literacy assignments—as sites within which both faculty and students can develop their own critical technological literacy—but also as sites within which students and faculty can formulate guidelines and policies for critically informed practices that put these understandings to work in complicated social situations. Feenberg offers the possibility of considering such sites in terms of their underdetermined potential, a potential which can be exploited by interested and knowledgeable social agents determined to make a difference in their own and others’ lives. Technology-rich communication facilities are already replete with such interested agents—the English/language arts teachers involved in designing and teaching within them, the students involved in using them and learning within them, the staff members (often students) responsible for keeping them operational, and the administrators who help to fund them.

In technology-rich communication facilities, students and teachers can develop a more critically-informed sense of technology by actively confronting and addressing technology issues in contexts that matter—contexts that involve real people (peers, faculty, community members, staff members) engaged in a range of daily practices (making decisions about software and hardware purchases, hiring individuals who can help teachers and students deal more effectively with technology, setting lab fee levels for students, deciding on etiquette and use guidelines, identifying access problems) within their various lived experiences and in light of their own goals. When confronted and addressed in these complicated and often contradictory contexts, technology and technological issues become connected with social issues, human values, and material conditions—rather than naturalized and separated from such experiences.

These sets of issues and others are all part of the process of managing technology-rich environments, and each is a component of the critical technological literacy we believe students must develop as they become effective social agents and citizens. Our culture will need these activists—in school board and PTO meetings, in small businesses, on corporate boards, and in government agencies where decisions about communication technologies will influence the personal and professional lives of citizens.

In Districts and Systems and States That Have Poor Schools, Rural Schools, and Schools with Large Populations of Students of Color

We need to resist the tendential forces that continue to link technological literacy with patterns of racism and poverty. We need to insist on and support more equitable distributions of technology.

In Our Voting for School Board Elections, in Committee Meetings, in Public Hearings, at National Conventions, in the Public Relations Statements of Our Professional Organizations

We have to argue—at every chance that we can get—that poor students and students of color get more access to computers and to more sophisticated computers, that teachers in schools with high populations of such students be given more support.

In Pre-Service and In-Service Educational Programs and Curricula

We need to help all English composition teachers get more education on both technology use and technology criticism. In the curricula comprising our own graduate programs and the educational programs that prepare teachers for careers in our profession, we need to make sure these programs don’t simply teach young professionals to use computers—but rather, that we teach them how to pay attention to technology and the issues
that result from, and contribute to, the technology-literacy linkage. It is no longer enough, for instance, simply to ask graduate students or colleagues to use computers in composition classes. Instead, we need to help them read in the areas of technology criticism, social theories, and computer studies and, then, provide them important opportunities to participate in making hard decisions about how to pay attention to technology issues in departments, colleges, and local communities; how to address the existing links between literacy and technology in undergraduate curricula; how to provide more access to technology for more people and how to help individuals develop their own critical consciousness about technology.

In Libraries, Community Centers, and Other Non-Traditional Public Places

We need to provide free access to computers for citizens at the poverty level and citizens of color—not only so that such individuals have access to computers and, thus, can become proficient in computer use for communication tasks, but also so that these citizens have access to the Internet and to online sites for collective political (Oppel; Hoffman and Novak).

Toward an End...

The lessons I have outlined in the preceding pages, as I am sure readers understand, are as much about literacy as they are about technology. But, as Bano Latour notes, real-life stories always lack richness and accuracy when they are told from a single perspective. We require multiple perspectives if we hope to construct a robust and accurate understanding of the ways in which technology functions in our culture. Our profession’s occasional respectful attention to technology and the social issues that surround technology may allow us to see things from a slightly different point of view, even if for only a moment in time. And from such a perspective, as Latour reminds us, our interpretations of issues “take on added density” (viii).

I might add that this occasional merging of the technological and the humanist perspectives into a vision that is more robustly informed has as much value for scientists and engineers as it does for humanists. Margaret Boden, an early pioneer in artificial intelligence, notes in the Introduction to her landmark 1977 book, that she was drawn to the study of artificial intelligence for its potential in “counteracting the dehumanizing influence of natural science” and for its ability to “clarify the nature of human purpose, freedom, and moral choice,” those “hidden complexities of human thinking” (4) that machines cannot replicate, that have always concerned us most within this profession.

One technology writer, Mark Weiser, has said that “The most profound technologies are those that disappear,” that “weave themselves into the fabric of everyday life until they are indistinguishable from it” (94). I agree, but with a slightly different interpretation—these technologies may be the most profound when they disappear, but it is exactly when this happens that they also develop the most potential for being dangerous. We have, as a culture, watched the twin strands of technology and literacy become woven into the fabric of our lives—they are now inscribed in legislation, in the law-in the warp and woof of our culture. But, recognizing this context, we cannot allow ourselves to lose sight of either formation. We must remind ourselves that laws write the texts of people’s lives, that they constantly inscribe their intent and power on individuals as Michel de Certeau says, “making its book out of them” (140).

It is our responsibility, as educators, to commit ourselves every day that we teach to reading and analyzing these texts, these lives of students—honestly, with respect, and to the very best of our collective and personal abilities. The alternative—of ignoring them, of perceiving students only in terms of their numbers in our schools or as members of undifferentiated groups—is simply unacceptable. As Elspeth Stuckey, Mike Rose, Harvey Graff, Brian Street, James Paul Gee, and many others have told us, when we participate in unthinking ways in political agendas, legislative initiatives, or educational systems that support an overly narrow version of official literacy, we all lose, and we are all implicated in the guilt that accrues to a system of violence through literacy.

It is my hope that by paying some attention to technology, we may learn lessons about becoming better humanists, as well.

Works Cited


