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Recommended Citation
DOI: https://doi.org/10.7771/2832-9414.1387

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Networked Computers + Writing Centers = ? Thinking About Networked Computers In Writing Center Practice

Stuart Blythe

If literacy scholars are to . . . make decisions about pedagogical uses of technology, and take an active role in technological development, it is essential that we examine the underlying theories of technology that are a powerful (if unarticulated) force shaping attitudes and actions toward technology.

—Christina Haas, Writing Technology: Studies on the Materiality of Literacy (167)

For the past several years, many writing center administrators have been rushing to add networked computer technologies—which currently may include e-mail, MUDs/MOOs, gophers, conferencing software, and World Wide Web sites—to their repertoire of services. Evidence of this phenomenon has appeared in a number of places. For example,

• the topic has received attention in a special issue of Computers and Composition (volume 12, number 2, 1995), in the inaugural edition of the online journal, Kairos (volume 1, number 1, 1996; http://english.tru.edu/kairos/1.1/index.html), and in the Winter 1995-1996 edition of The ACE Newsletter (volume 9, number 4);

• the number of links to networked writing centers listed on the National Writing Centers Association web site (http://www2.colgate.edu/diw/NWCAOWLS.html) and Purdue University's Online Writing Lab (OWL) web site (http://owl.english.purdue.edu/writing-labs.html) continues to grow;
The topic recurs occasionally, both on WCENTER (WCENTER@TTAC56.ttu.edu) and at several recent conferences, including the last three Conferences on College Composition and Communication, the 1995 (Inter)National Writing Centers Association Conference, and numerous regional writing center conferences.

At the 1995 CCCC in Washington, DC., for example, a presentation by Muriel Harris, David Taylor, David Coogan, Eric Crump, and Patricia Ericsson drew a standing-room-only crowd that spilled into the hallways. The topic also drew an oversubscribed crowd to a workshop during the same convention, and it constituted one of only two post-convention workshops at the 2nd Annual (Inter)National Writing Centers Conference in St. Louis, Missouri, later that same year. Another workshop on writing centers and computers was most recently conducted at the 1997 CCCC in Phoenix, Arizona.

A swirl of questions surrounds this phenomenon, as is inevitable with any new technology. What happens to people's senses of their roles as writers, students, and instructors when working with various online technologies? How do networked technologies fit in with, or alter, a writing center's mission? How may an OWL affect a writing center's image on campus? Who benefits from those technologies? And who gets left out? These questions arise in the face of more fundamental questions: Is the expenditure of time and money required to run an OWL justifiable? Would students find greater benefit if we redirected our resources elsewhere? Would our students be better off, for example, if we took the quarter-time position allocated for the OWL Coordinator at Purdue and used the funds to pay for another tutor in the campus's Writing Lab? These and other questions get asked repeatedly in print and at meetings, and indeed they merit repetition. Answers that have been offered, however, sometimes seem contradictory. Jennifer Jordan-Henley and Barry Maid have claimed, for example, that creating a writing center in cyberspace is not a particularly alien concept ("MOOVing" 1). Their descriptions of their cybertutor project make it seem that a writing center need not expect many drastic changes when it adds online services. Instead, tutors need to work on ways to transfer existing practices to the new environment. Dave Coogan, on the other hand, asserts that networked technologies (e-mail in this case) present such drastic changes that they allow him to describe a new mandate based on e-mail tutoring ("E-mail Tutoring" 171). So, which is it? Do networked computer technologies prompt few changes for writing centers or changes drastic enough to allow a new mandate?

Actually, I do not want to offer a definitive answer here so much as to help explain why such differences in perception exist on this subject. I offer this essay, therefore, as a part of an ongoing discussion about networked computer technologies and writing center practice, which means I will not be
offering a technical how-to treatment here. A focus on how to involves the posing and answering of logistical questions that, though important, lie outside the intent of this essay. Rather, I hope to contribute to the examination that Christina Haas describes in the epigraph of this essay. I examine the underlying theories of technology that are a powerful (if unarticulated) force shaping attitudes and actions toward technology (167). By describing a number of commonly shared conceptions of technology, I hope to provide a context for the often contradictory accounts of networked computer use in writing center practice (contradictions embodied in the essays by Jordan-Henley/Maid and Coogan). I hope thereby to offer writing center administrators a framework for thinking about the accounts of technology use that they hear, about the question of whether or not they wish to add networked computer technologies to their center’s services, and, if so, about how they might implement these technologies. I hope, in other words, to focus on theoretical questions of technology use in order to add to our field’s ongoing conversation about networked computer technology and writing center practices. Before I do that, though, let me clarify this distinction between logistical and theoretical questions.

The Value and Limits of Logistical Questions

Logistical questions arise inevitably when one needs to know how to do something. Such questions arise, for example, when people need to know about the resources and skills required to establish an online presence. Logistical questions reflect the desire to know what steps to take in order to get online services up and running, to know how to use those services effectively, and to know how to teach students to use them. Such questions address issues of software, hardware, programming, personnel, training, teaching strategies, and costs.

A review of writing center literature reveals that logistical questions have been raised and discussed ever since administrators and tutors began introducing computers into their writing centers. Logistical essays have appeared regularly at least since the mid-eighties in The Writing Center Journal and Writing Lab Newsletter, offering accounts of the uses of various computer technologies (both networked and non-networked) in particular writing centers. A look at the Fall/Winter 1987 edition of The Writing Center Journal (an edition devoted entirely to non-networked computers in writing centers) provides early examples of such essays. Fred Kemp describes several computer programs designed to aid student discovery—programs such as Seymour Papert’s LOGO and Hugh Burns’s Topoi. Jeanne Luchte’s bibliographical essay describes how such programs could help students through the commonly conceived phases of writing instruction: prewriting, drafting, editing, etc. (Also see Anne Wright’s essay.) And David Partenheimer and Bill Emmett offer opposing views of the value of Wandah/HBJ Writer, a
program designed to aid in prewriting and drafting. This tradition of logistical essays exists as well for networked computer technologies. Joyce Kinkead's description of her center's use of e-mail to expand its services, Jordan-Henley and Maid's descriptions of their cybertutor project, and Muriel Harris and Michael Pemberton's catalog of important technical and personnel considerations offer typical examples of logistical accounts of networked technologies. In "The Electronic Writing Tutor," Kinkead suggests that e-mail is a medium through which a writing center can extend its existing services across traditional barriers of space and time. She describes how her center offered an e-mail service that allowed commuter students—students who most often juggle school with family and full-time jobs—to reach services that would otherwise be closed by the time they were free to pursue their school work. In both "MOOving Along the Information Superhighway: Writing Centers in Cyberspace" and "Tutoring in Cyberspace: Student Impact and College/University Collaboration," Jordan-Henley and Maid describe how MOO technology allowed graduate students from the University of Arkansas-Little Rock to tutor undergraduates from Roane State Community College in Tennessee—undergraduates who otherwise would lack such student/tutor contact. In both essays, Jordan-Henley and Maid describe such factors as tutor training, student and tutor responses to the technology, and initial pitfalls to avoid when establishing an online tutorial relationship. In "Online Writing Labs (OWLs): A Taxonomy of Options and Issues," Harris and Pemberton catalog a variety of elements that can go into an OWL's configuration—elements such as networked services, writing center goals, tutor expectations, and technical personnel. Harris and Pemberton list such elements in hopes of helping other administrators recognize significant topics for consideration when implementing online services.

As most of these accounts illustrate, logistical questions are often answered in the form of stories about the uses of specific technologies in a particular writing center. As Patricia Sullivan and James Porter note, this story-telling serves a good purpose. Accounts of technology use in writing centers help other administrators and tutors to decide whether (and also how) similar computer services would help in their own centers; consequently, these accounts help others avoid reinventing the wheel. I read logistical essays eagerly in part because of my position as Purdue's OWL Coordinator. I have had to learn to keep e-mail, gopher, FTP, and World Wide Web servers running; I have had to decide whether or not a MUD/MOO site would be appropriate for my particular campus; I have had to pore through computer guides and catalogs in order to purchase and network computers within Purdue University's walk-in Writing Lab; I have had to learn to work with programmers; and I have had to find ways to teach others to use the technology. Such responsibilities most often keep me focused on logistical concerns. I always want to know how someone else has gone about solving a particular
problem in their center because I assume that I may be able to import their solution to my situation. At the same time, though, I have discovered that an exclusive focus on such concerns misses half the picture.

**On the Need for Theoretical Questions**

Stories about particular uses of technology are extremely important; however, as I mentioned earlier, such accounts can be contradictory, and I need some way to deal with that contradiction. At some point, I discovered that I need to know what conceptions of technology seem to inform those stories if I am to sift through them and get as much value as possible from what I hear and read. That is why logistical questions are insufficient in themselves. Consequently, I also must ask theoretical questions—questions that, according to Michael Schrage, prompt us to examine the very paradigms, the basic metaphors and analogies, that guide our understanding of a given context. By searching for the paradigms that guide a writer's conceptions of technology, we gain a strategy for sifting through the growing body of data (often contradictory) that is arising to explain what is happening in this new electronic frontier. This, in turn, can help each of us examine our own conceptions of technology. It might even keep us from talking past each other at times.

Moreover, addressing theoretical questions can help each of us examine our own uses of technologies for learning—not just computer technologies, but all relevant technologies. It helps us by enriching our understanding of technology, which, in turn, puts each of us in a position to do more than merely accept technologies developed by those with no commitment to, or understanding of, writing instruction. "If [writing centers] do not actively participate in development and use of computers for writing," Jane Nelson and Cynthia Wambeam warn, "they risk not only marginalization and limitations on resources; they allow people who are not experts in writing to make important decisions about writing technologies" (136).

A significant part of this participation in development must be theoretical because, even though writers often leave their conceptions of technology unstated, one cannot approach technology with a theory-free attitude. Even the thought that theory does not apply to technology is a theory itself. The notion that technology falls outside the scope of theoretical inquiry, that technology is an unworthy or unimportant topic for speculation, inevitably involves a theory of what technology is and how it fits in the realm of human thought.

**Differentiating Instrumental and Substantive Theories of Technology**

For the remainder of this essay I will rely primarily on Andrew Feenberg's *Critical Theory of Technology* to identify several prominent theories of
technology that have informed existing writing center discussions. I should admit up front, though, that I am not offering an innocent taxonomy (such a thing being impossible anyway), primarily because I espouse one particular theory (as does Feenberg). Specifically, I will argue that a focus purely on logistical questions is justifiable only if one adopts what Feenberg calls an instrumental theory of technology, and I will argue that instrumental theory is inadequate for the writing center field. I will describe substantive theory as an alternative to the dominant instrumental paradigm, and I will argue that substantive theory is more compelling than its counterpart. I will do that, though, only to reject it in favor of a third position that Feenberg calls a critical theory of technology.

Instrumental Theories of Technology

I have said that an exclusively logistical focus (a focus on how to implement technology) seems inadequate by itself. Here I want to argue that such a focus implies a lack of concern or awareness for the ways in which a technology might affect one's basic conceptions of what one does. A logistical focus can be justified only if one sees technology as indifferent and neutral, a view which Feenberg says is informed by an instrumental theory of technology. Instrumental theories assume that technological design proceeds along universally rational, scientific criteria and that, consequently, technology is free of cultural bias, that it transcends the limitations of any individual culture. As Feenberg writes in "Subversive Rationalization: Technology, Power, and Democracy," an instrumental theory assumes that technologies have an autonomous functional logic that can be explained without reference to society (5). Because technologies are built on universally rational principles that transcend cultural boundaries, a technology can be transported from culture to culture without any inevitable impact on politics, social structures, or norms. What works in the United States can also work in Indonesia or France or the Ukraine; likewise, what works at one writing center will work in any other center. In an instrumental theory, therefore, a technology is neither good nor bad; it is simply there for humans to use. Because technological design proceeds on purely scientific, technological, and (therefore) neutral criteria, so the theory goes, it is human use that merits moral judgment—not the technology itself (Feenberg, "Subversive Rationalization" 6). The technology itself is value free and not worth moral scrutiny, which is partially why Haas describes such a theory as the transparent technology myth (34).

Instrumental theories seem to influence several prominent discussions of networked writing center services, an influence usually manifested in the assertion that technology is a new tool with little implication for change in a center's basic mission. Such an argument has been made for both asynchronous and synchronous technologies. Kinkead has argued that e-
mail is a medium through which a writing center can expand its existing services by overcoming traditional barriers of space and time; however, she does not question whether (or how) the move to networked services may change the interaction between student and tutor. Regarding synchronous technologies, Jordan-Henley and Maid argue that interaction on MUDs/MOOs is not as radically different from other forms of interaction as many think: "It has always seemed to us that all writing takes place in a kind of virtual reality involving one's vision, one's ideas, and one's voice. When viewed in this manner, creating a writing center in Cyberspace is not a particularly alien concept" ("MOOving" 1).

Even the fact that a student must adapt to the new environment when online is similar, they say, to a student's attempt to adapt to a real life writing center environment. As students walk into a writing center the first time, Jordan-Henley and Maid suggest, they are often nervous, hesitant, and don't know what to expect ("MOOving" 6); the same goes for interaction in an online environment. Therefore, solid writing center theory applies in cyberspace as it does in the traditional center ("Tutoring" 212). There may be some minor differences brought on by the need to work entirely in writing (rather than speaking face-to-face), but these differences are portrayed as issues on an individual level. Jordan-Henley and Maid postulate no changes at an institutional level, which suggests that they do not see (or perhaps, for good reasons, they do not want to portray) MOO technology changing the fundamental work of the writing center ("Tutoring" 212).

A focus on purely logistical concerns can be justified only if one accepts three propositions. First, one must accept the instrumentalist assumption that each technology is relatively neutral—that its design is controlled by the purely disinterested, rational codes of science and technology and that, consequently, each technology is itself value-free. Second, one must assume, as a consequence of the first proposition, that changes brought on by a given technology will be relatively minor and will remain at the personal level, rather than affecting institutions or cultures. Third, individuals (rather than the technology) should be held entirely accountable for proper and improper uses of networked technologies. In the case of writing centers, therefore, the assumption might be that computers may require a few adaptations on the parts of administrators, tutors, and students but that the writing center itself, as an institution, will see little or no real change in its fundamental mission and identity. The important task would be to ensure that everyone uses the technologies properly.

Substantive Theories of Technology

Whereas instrumental theories see technology as neutral, substantive theories suggest that technology is created from a unique cultural system and that, consequently, technology plays a significant role—perhaps even a
determining role—in shaping social structure and human endeavors. Those who espouse a substantive theory of technology reject the notion that any technology is built on neutral, scientific standards that transcend all cultural systems; rather, they postulate that scientific and technological methods comprise their own biased cultural system that must compete with other systems. Technology is, therefore, not some transcendent category that sits above other cultural systems; rather, it comprises its own system, a system aligned with science that privileges some actions while marginalizing others (Feenberg, Critical Theory7). Therefore, as Robert Pippin suggests, “There is no such thing as, simply technology, or the technological en-framing; there is technology designed in a certain social period for various tasks, embodying various ends, organized under certain normative assumptions” (50). The technology itself is worthy of moral praise or blame because one can see in its design political and ethical values that merit judgment and because it is the technology that determines culture, which is why we can compare substantive theories of technology with what Haas calls the “technology is all-powerful” myth (35).

Those who espouse a substantive theory of technology claim that a technology embodies an ideology. (Robert Pippin provides an especially useful discussion of technology as ideology in “On the Notion of Technology as Ideology.” See especially pages 45-46.) “Because each technology allows certain types of practices while proscribing others as deviant, impractical, or simply unthinkable” (Kaplan 14), the technologies we place in our writing centers can express certain expectations about student and tutor behavior. If the tutors in a writing center were to adopt a narrow definition of plagiarism, for example, they could choose to use only blackboards and chalk so that students could not walk away with any record of the tutorial, any record that could be misused in the student’s paper. The technology in such a case (i.e. blackboard and chalk) would perhaps give student and tutor a good chance to work together for a while, to work simultaneously at building and modifying a diagram or outline, but it would send a clear message about the student’s roles as a writer.

If one were to accept the substantive assumption that technology constitutes a new type of cultural system (Feenberg, Critical Theory7), then the decision to incorporate computers into a writing center could be seen as a harbinger of institutional changes. A few voices in writing center literature have offered such views. Substantive approaches to technology in writing centers usually manifest themselves when a writer advocates or rejects technology because of what it might do to the basic nature of a center’s service. Feenberg suggests that those who take a substantive approach to technology often argue for rejecting a particular technology. I would say, though, that some writers argue for technology because of the change it will bring. Such positive substantive approaches have appeared in discussions of
both asynchronous and synchronous technologies. Like Kinkead, Coogan recognizes that e-mail blurs boundaries of space and time. However, Coogan also believes that this blurring changes the power dynamics of tutoring ("Towards" 3). Coogan welcomes the loss of many phatic cues because, he says, students learn to use writing to improve writing, rather than to talk about how to dress up their paper texts ("Towards" 3). Freed from the concerns of making a text look nice on paper, Coogan suggests, students are more likely to deal with the ideas themselves as presented in the text on screen. Balester also advocates the changes brought about by computer technology when she envisions the collaborative potential of networked communication software (e.g., Daedalus) and argues that its design is better suited to collaborative purposes than is the design of the traditional drop-in center (1). Citing Andrea Lunsford's essay, "Collaboration, Control, and the Idea of a Writing Center," Valerie Balester suggests that writing centers must become truly collaborative and that communication software offers them the chance to do just that.

Objections to such optimistic assessments have appeared as well, objections which take a negative substantive approach. Katherine Grubbs, for example, questions whether an online tutorial might mask issues that should be dealt with openly—issues such as gender, race, and class. Michael Spooner has similar concerns about the possible effects of network technology on tutorials: "In the role of the writing center that is concerned with disseminating generic information, I think an OWL may be wonderfully useful. . . . But I tend to think that encountering a student over a text is best done face-to-face" (7). Spooner believes this because "[i]ssues of response look much different in the context of different discourses" (7). Network tutorials do not approximate face-to-face tutorials, Spooner claims, and, moreover, network tutorials present too many problems to merit the effort—problems such as the appearance of too much authority for a tutor who "appears" in print and the ease of plagiarism for a student who could easily appropriate a tutor's written comments into a paper.

Those who adopt a substantive theory of technology, then, accept three propositions. First, they accept the assumption that each technology carries with it certain biases that will change the nature of selected human actions significantly. Second, they assume that the technology is more powerful than humans, that each technology will inevitably change the nature of human action. Third, as a consequence of the second proposition, they assume that technology must either be accepted for the positive changes it will bring or rejected for its weaknesses (or perhaps even its insidiousness). In the case of writing centers, therefore, the assumption might be that a networked computer service such as an e-mail program will inevitably alter the nature of writing center tutorials. One must either accept or reject the e-mail program based on the inevitable consequences that it will bring.
Support for Substantive Theories: Computers as Tools, Media, and Environments

I have presented two possible approaches to technology: instrumental and substantive. I do not believe that both approaches can co-exist; therefore, I will argue in the following sections that substantive theories are more compelling, despite a fatal flaw. An instrumental view of technology may seem tenable if one sees networked computers as little more than tools. If networked computers are mere helpers or glorified typewriters, then it is easy to assume that such technologies will not present too great a change for writing centers. Certainly, there are good reasons to think of computers as tools. As Patricia Sullivan points out in “Taking Control of the Page,” it may even be a savvy rhetorical move. For instance, Jordan-Henley and Maid may take an instrumental stance in their work for very practical rhetorical reasons. As some of the first administrators to venture into synchronous online conferencing, they want to assure others that MOO conferencing is not all that drastically different from face-to-face tutorials. “By focusing on the ‘toolness’ of writing with computers,” Sullivan writes, “discussions of computers and composition have promoted an image of the computer as a helpmate or assistant to writers and teachers rather than as an agent of change” (45). This image of computers as “assistants” may be reassuring for many people. It promises extra service without too much extra work. It makes computers seem like manageable components in one’s teaching. However, computers are much more than tools.

There are several compelling reasons to reject an instrumental theory of technology. For one thing, the very complexity and power of today’s computers force us to see them as more than mere writing tools. As Jay David Bolter claims, a computer “combines the qualities of the printing press and the blackboard. It can transmit perfect copies of texts, yet it offers the author and the reader the opportunity to modify the text at any time” (56). Computers can accommodate the input, revision, storage, transfer, and display of information; they can act as chalk, blackboard, book, and television all at once. That is, they can be a tool for inputting and revising information, and they can be a medium for the transmission and display of information. Alan C. Kay cites “the ability of . . . computers to become any and all existing media as one of their values to education” (146). Moreover, computers offer a virtual environment, a setting created by the interface and through which people work. Bolter speaks, after all, of writing spaces, a word which implies an environment in which things appear and in which people may work. The computer is, therefore, not only a tool (an implicit point of Bolter’s book); it is also a medium and an environment, and it is these things simultaneously.
Tools Affect Actions

If first we define an artifact as any object created by human beings, and a tool as any artifact designed to mediate the actions and operations of individual human beings toward things (Bødker 59), we should realize that our teaching practices already rely on a variety of tools. Well before the advent of computers, writing center practice has relied on tools designed to help humans input, store, exchange, display, and retrieve information. Second, we should realize that the tools we use affect the work we do. One cannot simply design a tool without changing the nature of the work one does. As Susanne Bødker suggests,

To design an artifact means more than designing the object that can be used by human beings as artifacts in a specific kind of activity. As the use of artifacts is part of social activity, we design new conditions for collective activity, for example, new divisions of labor and other new ways of coordination, control, and communication. (44)

In designing tools, we create new conditions for activity because tools promote certain behaviors while inhibiting others. Paper, for example, is an artifact created for the inscription, storage, presentation, and relatively easy transport of information; pens and pencils enable data input. Blackboards and chalk also allow the recording of thoughts, but blackboards resist easy transportation. If a tutor and student worked together at a blackboard, they would have ample opportunity to write simultaneously. If a tutorial incorporated a blackboard, though, someone would have to transcribe the information from the board to another medium if she wished to transport it elsewhere. By enabling some functions while disabling others, a tools affects the work of the tool user.

The Medium Affects Actions

In addition to offering new tools for work, networked computer technologies offer new media in and through which to communicate, and (as with tools) the nature of the medium affects the activities of those who use it. According to Neil Postman, each medium of communication employs its own set of “techniques and technologies that permit people . . . to exchange messages” (6). (Postman writes in the tradition of Marshall McLuhan and Walter Ong.) Each set of techniques and technologies, “encourag[es] certain uses of the intellect, by favoring certain definitions of intelligence and wisdom, and by demanding a certain kind of content” (Postman 27). For instance, Postman has argued, the transmission of information across a small television screen lends itself to quick changes and close-ups, requires of its audience the relatively passive reception of information, and denies the opportunity for review, input, and self-pacing. Books, on the other hand, can more readily accommodate lengthy analyses, psychological description, and review. Therefore, television requires users who can keep pace with swift
visual changes, whereas books require users who can follow lengthy descriptions and arguments.

As with other media—such as talk, books, telephones, radio, and television—each computer technology relies on a unique set of techniques and technologies which in turn require a unique set of skills and assumptions from its users; therefore, the changes in media brought about by networked computers can bring changes both in how tutors and students interact and in their sense of the task at hand. The traditional tutorial occurs, for example, primarily through a face-to-face medium. Indeed, practitioners such as Muriel Harris ("Talking in the Middle") and Wendy Bishop ("Writing from the Tips of Our Tongues") have extolled the virtues of talk as the centerpiece of writing center instruction. This face-to-face medium is one with which we are so familiar that we often forget to recognize it as such; however, it is indeed a medium with its own set of unique techniques (if not technologies) for transmitting messages. Human beings have developed a great range of visual and extra-verbal cues—such as inflection, gesture, and pace—for use in a face-to-face encounter. The availability of such cues has been promoted as one of the strengths of the tutorial. Though I would suggest that we lack a clear sense of what exactly is lost when a tutorial goes online (an essay by Janet Eldred and Gail Hawisher complicates this notion), the computer medium does indeed change the set of available cues. Maurice Schartan and Pam Farrell both have noted how the computer affects a face-to-face tutorial. What happens, though, when the computer becomes the medium itself? How, for instance, does one see the blank, uncomprehending stare of a mystified student (Harris, "Writing One-to-One" 20) if one cannot see that student's face? What cues can we rely on via e-mail or when interacting in a MUD/MOO?

Environment Affects Actions

The very term “writing center” implies a space, an environment where people come to work on writing tasks. Indeed, the whole point of a writing center is to create a space in which students can work on specific writing projects—a space distinct from writing classrooms (see Healy) and filled with appropriate resources (see Simons et al.). Just as with tools and media, so does a writing center’s environment—a space defined by walls, windows, pictures and signs, floors, ceilings, temperature, and the arrangement of furniture—affect the nature of writing center work. When we’re with other people, Schrage says,

our surroundings can’t help but influence us. . . . While personality matters, environment often determines which part of the personality is revealed. Privacy, intimacy, and accessibility are as often imposed by where we are and what technologies surround us as they are by the way we may feel at any given moment. (13)
If, for example, a writing center practitioner wished to promote the collaboration of student groups, a series of carrels divided by partitions into individual units would make that goal much more difficult to achieve than would a series of circular tables at each of which four or five students could sit.

I do not want to suggest that writing center administrators and tutors are insensitive to the effects of environment on interaction. This awareness must be extended, though, to computers as environments. Just as a tutor and student may interact face-to-face in a setting filled with voices and a variety of signs, so may an online exchange occur in a setting created by an interface. As Cynthia Selfe and Richard Selfe have asserted, for example, computer interfaces can provide cultural maps of computer systems (485). The symbols relating to white-collar office work that pervade the Macintosh interface can legitimate select behaviors and evoke particular responses, just as a walk-in center’s physical setting can evoke complex human responses in the form of feelings, attitudes, values, expectancies, and desires (Becker 18). If computer users can project themselves into the virtual environment prompted by an application’s interface, then the design of that environment will affect the nature of the work that users undertake.

A Critical Theory of Technology

As I hope the preceding three sections illustrate, we should acknowledge that networked computer technologies will have a significant effect on what we do. Regardless of the metaphors we apply to computers (and computers can accommodate many metaphors at a time), we should expect that they will bring changes because of

- the manner in which computers influence patterns of communication and the structure of knowledge, mediate the individual’s sensory relationship with the environment, and re-encode the vocabularies of the culture, while at the same time influencing what gets saved and what gets lost in the transmission process. (Bowers 2)

I don’t know whether or not I want to suggest that computers will necessarily have anything as overwhelming as a revolutionary effect, but I am willing to say that computers will bring about changes significant enough to warrant critical attention, attention directed in part at the computers themselves. Consequently, as has been suggested by writers such as Janet Eldred and Ron Fortune, Nancy Kaplan, Don Ihde, Mark Poster, and Terry Winograd and Fernando Flores, one cannot simply transfer practices developed within the contexts of print and face-to-face encounters to the new networked computer technologies. This means that we must ask more than logistical questions about implementing technologies; we must ask theoretical questions as well.
because, if we fail to look beyond the question “Can we do it?” then we will fail to anticipate the full range of long-term consequences that computer technology will have on writing center work.

This need for posing and researching theoretical questions means, in turn, that instrumental and substantive theories of technology are inadequate for the task. If one accepts the argument that technology is worth looking at, that it merits our attention as an important variable in determining the quality of education, then an instrumental theory will prove inadequate because it suggests that a focus on technology is not as important as a focus on its uses. Because instrumental theory posits that each technology is built on rational and disinterested principles, it shuts the door on critique of technology. One either finds the system useful or one does not, but one has no place to consider how the technology may influence expectations and actions. Likewise, a substantive theory, which suggests that a technology inevitably changes things, would make a focus on technology important only if one were to argue that a given technology should or should not be accepted. In the case of both instrumental and substantive theories, one is left with a take-it-or-leave-it decision (Feenberg, Critical Theory). Such theories place technology beyond the need or ability of humans to intervene. It is either neutral (and therefore transparent and not worth our attention), or it is determining (and therefore all-powerful and beyond our control). There is no room for modification, and critique leads only to wholesale rejection or acceptance, rather than a more pragmatic compromise.

If Eric Crump is right in envisioning a future where students do most of their writing online, then we need ways to continue to work with technology without feeling that we are trapped into a choice between accepting whatever comes our way or remaining adamantly anti-technological and thereby running the risk of falling behind. We need, as Nelson and Wambeam remind us, to find ways to help shape the designs of technologies that will become available for writing center use. A critical theory of technology offers an alternative that will help the writing center field work toward these ideals. A critical theory of technology offers a valuable alternative because it acknowledges the substantive claim that each technology contains bias while offering us something more productive than a take-it-or-leave-it approach. In other words, such a theory acknowledges the cultural influence of technology while looking for a way to do something about it. In this way, Feenberg claims, critical theory charts a difficult course between resignation and utopia (Critical Theory). It charts this course both by taking an historical view of technological development and finding spaces for enacting new designs.

A critical theory looks at more than the elements that make up a current version of a technology; it also considers the cultural and technical codes that have informed its development. This means that critical theory not only
looks at a given technology, taken out of context; it also looks at the horizon in which it was developed. This helps shatter the illusion of a technology's neutrality, and it unearths the values and assumptions that went into its design (see Feenberg, *Critical Theory* 181.) New gadgets are developed in the context of existing needs, Mark Poster writes; they are “shaped by perceptions of situated individuals; they are restricted in their production and dissemination by ruling powers, and resisted by hegemonic cultural patterns and individual fears” (72). A technology may seem neutral when looked at out of context. It is when we place a given technology within the context of its development and use, with technical codes chosen based on certain cultural assumptions, that we can more fully analyze its biases.

By recognizing that engineers face a variety of options, Feenberg creates a second tactic for a critical theory of technology: the redesign and readaptation of technology for democratic purposes. This gives writing center tutors and administrators a way out of an ineluctable technological fate by envisioning a conceptual space where they can help envision and shape new forms of technology that meet desired educational goals. That conceptual space depends on the concept of ambivalence, which appears during a technology's design process. As technology continually develops, as groups pursue technological projects, a number of possibilities are immanent in the process. Engineers never face only one viable option for developing a technology, Feenberg claims; rather, numerous technical options may exist, which means that engineers must choose from amongst a batch of technically viable options when designing and constructing a given technology (“Subversive” 6). What determines that choice, Feenberg suggests, is a mix of cultural and technical codes.

Feenberg's argument is very similar to the one that many writing instructors give to students when asking them to analyze a particular text. Often a student takes a text as inevitable, as if the design of that text were the only possible option. Most writing instructors know, though, that writers choose from among innumerable options in constructing texts. The designers of an advertisement, for example, could have chosen all sorts of images and slogans in order to sell a product. The elements that drive such choices are cultural codes. Likewise, in technology, the elements that drive a choice from amongst various design options are cultural and technical codes, not some purely disinterested, transcendent code of efficiency. Ambivalence exists because numerous options exist.

The potential for determining the uses of technology comes, Feenberg suggests, in the ambiguity present in design and redesign, in the moments when teams sit down to figure out what a technology will do and how it will do it. If one group (say, management or faculty) controls the project, then the technology might develop in one way; if another group (say, labor or students) controls the project, then the technology might develop another
way; if both groups contribute equally to the project, then the technology might develop in a third way. Therefore, technological development enables certain practices and can affect certain social arrangements (as substantive theorists would claim), but it need not affect certain social arrangements in only one way. The trajectory of its development is not fixed, but ambivalent. It can follow several paths. The purpose of critical theory is to affect technological development so that it follows more democratic, empowering paths, and this should apply to education as well as to industry.

A Next Step: Starting to Rethink Design

The thought of getting involved in design seems daunting. It certainly intimidates me. We might start, though, by thinking of design as something that occurs in more places than engineers' desks. Design may involve, for example, creating a new program, updating an existing program, deciding which features to implement and ignore, or mixing the features of several programs into a new type of service. In each case, people look at existing technologies, draw on what's available, and perhaps add new features. One might consider the process a kind of bricolage, a process that works as much for the engineer as for the writing instructor. After all, a computer program would fail (in terms of sales) if it were so radically different that users saw no recognizable features (i.e., features that had never been seen before in other technologies) and had no idea how to apply the program. Even the engineer creating a new computer program is drawing on many existing features and ignoring others. Consider, for example, the relatively standard set of menu options—options such as file, edit, and tools that appear in numerous programs; consider how many programs share a basic arrangement that places scroll bars along the sides of the screen.

One task that might follow from this essay would be to identify realistic ways in which we can affect the designs of the technologies that we use. After Selfe and Selfe have critiqued the design of the Macintosh interface, for example, they offer three tactics for the eventual redesign of computer interfaces in composition classrooms: the development of technology critics (496-497), the contributions of writing instructors to technology design (497-499), and the re-conception of interfaces (499-500). Libby Miles, who once worked in academic publishing, observes that unsolicited letters to the author/designer often get saved for consideration when a product is updated. She also suggests that one should complete and send the comment cards that typically come with products. One might even encourage friends to write in as well. Twenty comment cards asking for the same thing are hard to ignore, Miles says. One also might express an interest in becoming a beta-tester or a trial audience for a demo disk. Such a situation gives instructors the opportunity to influence the range of available features that appear in a given version of a program. Selfe and Selfe also identify several avenues for
involvement in software design, including the Alliance for Computers in Writing, the International Federation of Information Processing, the Instruction Technology Committee of NCTE, and the CCCC Committee on Computers (498). These are just a few possibilities. We ought to think more about them.

Conclusion

I realize that this essay leaves many questions unanswered. What, for instance, makes a technology "empowering" for users? How would the staff of a writing center go about enacting a critical theory? Do most members of the writing center field have the time and resources to get involved in the design and adaptation of technology (regardless of how we define design)? I hope, though, that this essay helps put conflicting accounts of networked computer use into a context through which we might recognize sources of that conflict. Moreover, I hope it adds an element to many discussions about the design and adaptation of networked computer technologies for effective writing instruction. I hope that it prompts us to consider how we have implemented current technologies and who has been involved in that process.

These studies already have influenced our work with Purdue's OWL. By taking an historical view of the OWL, for example, I have realized that our original Web site was designed by a graduate student in education who was doing a thesis on how people retrieve information on the Internet. Purdue's OWL Web site was designed, therefore, as an experiment in information retrieval. This has prompted several of us at Purdue to look for ways to make the OWL more a site for a Burkean Parlor than a Storehouse (to use Lunsford's terms). At the same time, it has prompted us to think about who should be involved in that effort to redesign the OWL. We have found ourselves asking not only about what a more interactive service might look like, but also about how to adopt a design strategy that incorporates numerous voices. At the point of this writing, we are looking at ways to solicit ongoing input (not a one-time survey) from administrators, instructors, graduate students, and undergraduates. We'd like those voices to mingle with each other as well as with us; therefore, we are considering such things as a listserv to which the participants are invited to talk both to us and to each other about the possibilities of networked technologies.

What will happen at Purdue remains inevitably sketchy; however, I think that examining the theoretical questions raised in this essay has helped us chart a course. I hope that it may help other members of the writing center field as well, as we continue to sort through issues of technology and design. Perhaps, as we enrich our concepts of technology and practice, we will continue to move toward increasingly satisfying responses to the equation: networked computers + writing centers = ?
Notes

1 I thank Libby Miles, Jeff Grabill, Muriel Harris, Dave Healy, and the WCJ Reviewers for their insights during this article’s development.

2 David Kosiur and Joel Snyder define a computer network as “a collection of computing devices, such as personal computers, large mainframe computers, printers, and modems. This collection of devices is interconnected so that all devices can share information” (12). In this essay, I will use the term networked computer technologies to refer both to any configuration of computing devices designed for sharing information and workspace, and to specific parts of a larger network. Therefore, even though Kosiur and Snyder claim that a computer attached to a modem isn’t a network, I include such a configuration as an instance of networked technology, as a site linked to a larger network.

3 For a sense of the range of logistical essays available regarding non-networked computer technologies in writing centers, also see essays by Joseph Serico; Bonnie Sunstein and Joan Dunfey; S. Bailey Shurburt; Evelyn Posey; Alan Brown; Karyn Hollis; and Irene Clark.

4 Don Ihde points out that many studies deal with the effects of technology—effects such as pollution, hunger, and changes in social roles—rather than with the technology itself. By looking at the effects of a technology after it has been implemented, however, questions come to technology too late (Ihde xxiii). Ihde suggests, instead, that we learn to examine technologies themselves in addition to analyzing their effects.

Works Cited


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