
Computers in the Composition Curriculum: An Update

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The title of this essay borrows directly from "Computers in the Composition Curriculum: Looking Ahead," by Jeanette Harris, Diana George, Christine Hult, and M. Jimmie Killingsworth. Even though that article was published in the 1989 Fall/Winter issue of *WPA*, it remains, eight years later, at the top of my recommended reading list for those who are trying to negotiate the increasing impact of computers on writing programs. Although the subtitle "Looking Ahead" suggests that the focus of the original essay was the future, I value this article so highly because it continues to serve in the present as a concise and powerful position statement on computers and writing program administration. The authors write,

Many writing program administrators fight so long to get a computer lab or classroom for their program that they think the battle is over once the machines are in place. We would argue, however, that a strong computerized writing program focuses on writing, not computer technology. Computers are only machines; their effectiveness depends on using them to reinforce theories that inform our pedagogy. As writing program administrators, it is our responsibility to determine the role computers play in the teaching of writing. (35)

Harris and her colleagues also note that the "one constant factor in dealing with computers is change. As writing program administrators, we must try to keep informed of the changes and to react appropriately to them" (Harris et al. 41). It is therefore somewhat remarkable that since 1989 *WPA* hasn't published a single article about changes taking place in computers and writing. The lack of updates is probably due to the fact that writing program administrators are often asked to wear too many hats. The additional responsibility of being an expert on instructional technology is not something easily added to an often already overburdened workload. However, many indications suggest that *WPAs* can no longer afford to lack expertise in this area. The mind-boggling expansion of the Internet and the advent of the personal computer place us in the midst of very significant technology-driven cultural changes. Mainstream commercial and political forces have for some time been exerting tremendous pressure on educational institutions to technologize. And maybe most significantly, the Internet's ability to support virtual writing classes, often referred to as "distance learning," amounts to a very tangible revolution in the way we teach, a revolution whose early manifestations are both encouraging and threatening for writing programs, teachers, and students.

In short, in order to make the kind of informed decisions that Harris and her colleagues call for, WPAs need quality information, and they need it updated frequently. At the Eleventh Annual Computers and Writing Conference in 1995, one of the plenary speakers, Diana Natalicio, the President of the University of Texas at El Paso, suggested that the biggest challenge we all face in terms of education and computers is to think creatively to find ways to use technology to bring people together. And an important dimension toward achieving that goal is keeping ourselves as informed as possible about technological change. Perhaps, regular updates such as the one I present here can help toward that end.

Computers and Writing: The State of the Art in 1997

The big news since 1989 has been, without a doubt, the Internet. The original "Computers in the Composition Curriculum" could have never predicted a revolution in the realm of written discourse as monumental as widely available access to a global network of computers. And so, while I begin the nuts and bolts portion of this update with a description of the state of the art in hardware and software, as the reader will see, almost every important development in this report is, in one way or another, a result of the impact of the Internet.

Hardware for the Computer-Supported Writing Facility: From Pentiums to Infrared Networks

The body of research on computers and writing has generally avoided talking about specific hardware and software configurations for a number of good reasons. First, new products seem to arrive every six months or so, thereby making it difficult to write in the face of inevitable obsolescence. Second, scholars are hesitant to make formal endorsements for commercial products. This wariness has meant that important questions such as "My writing program wants to construct a new computer-supported writing facility this year—what equipment do I need, and how much will it cost?" often go unanswered and undocumented; therefore, in some ways, every WPA who works to create a new facility must reinvent the wheel. In 1997, the answer to the first question, "What equipment do I need?" is generally: a room with enough workstations so that if one or two of the computers go down, the facility will still be able to accommodate writing classes with enrollments of various sizes. Typically, this means 20 to 30 nearly top-of-the-line computers; in other words, if these computers were cars, you would probably want to select a new mid-size or slightly better, not a subcompact, not a luxury car, and not last year's model. In 1997, this would mean selecting mid-range Pentiums or Power MacIntosh's with at least 8 MB of RAM, average hard drive capacities, and standard but not advanced processor speeds (measured in megahertz or MHz).

These computers should be networked not only locally within the

classroom itself, but also globally through a direct connection to the Internet. A lone high-speed, high-volume laser printer can now efficiently handle the demands of as many as 30 to 40 students printing out at once. These printers are quieter and more reliable than dot matrix printers, but they are also more expensive to purchase and operate. Most networked facilities will also require a file server such as Novell- or Sun-brand machines. While a file server's outward appearance may not be substantially different from a personal computer's, the differences in their price tags and capabilities are significant. A file server is to a network what a brain is to a nervous system: they both function as the central storage house for information as well as the trafficker of in-coming and out-going data. Educational network administrators are becoming increasingly fond of Unix-based file servers—"Unix" is an operating system in competition with DOS, Windows, Macintosh, and other platforms; it is an increasingly popular platform because it is a very capable system for maintaining e-mail accounts and Internet connections.

I describe the previous configuration in order to provide an answer to the second question: "How much will it cost?" Below is an estimate based upon actual costs of a recently established facility at my home institution.

30 stations	\$ 75,000
file server	\$ 5,000
printer	\$ 4,000
projection system	\$ 4,000
furniture	\$ 6,000
remodeling	\$ 15,000
cables & accessories	\$ 2,000
software	\$ 13,000
supplies for 1 year	\$ 1,000
total	\$ 125,000

However, it is important to note that an institution's actual cash outlay toward establishing a new facility can vary greatly, depending upon a number of issues. Grant money can reduce actual costs. But, of course, receiving grant money remains a complicated, competitive, and tortuous pursuit. Another way to reduce costs is to carefully examine the goals and needs of a writing program to see if it's reasonable to downsize from the \$125,000 model that I just described. For example, if your campus or your building is not directly wired to the Internet—such wiring is often referred to as a "backbone"—and is not likely to acquire such connections in the near future, you may be able to operate with less expensive workstations and file servers. I also know of colleagues who have an "ain't too proud" attitude toward acquiring computer equipment: they're willing to make use of old computers that other departments have outgrown. Teachers have for a long time had to be resourceful, and one approach is that any com-

puter, no matter how outdated, can be used to support writing pedagogy, if used creatively.

However, a word of caution: if English departments or writing programs are especially obvious about their willingness to take hand-me-downs, they run the risk of being permanently placed on the bottom of the list regarding expenditures on technology. In order to counter such relegation, two of the most effective points a WPA can argue when making a case for gaining access to his or her institution's newest instructional technology are (1) that, on a national scale, writing instructors have a great deal of practice, a significant body of research, and a large number of experienced colleagues that will lend significant support and guidance to any new, local program; and (2) that the vast majority of the information which instructional technologies are currently able to exchange effectively is textual. In other words, while the sciences may seem at first a more common sense place for computers, writing programs are in many ways a better match with instructional technology because of a solid history with computers in the field as well as the largely textual nature of much of today's computer-networked exchanges. However, other factors may also influence the decision regarding whether or not to accept hand-me-downs; for example, if a writing program is linked to a graduate program responsible for developing future instructors (instructors who will clearly need experience in this area), then such programs may feel that some access is better than none.

The bottom line is that, with enough effort and creativity, a writing program can eventually acquire some version of a computer-supported writing facility, and this facility may actually cost your institution substantially less than \$125,000. Of course, a program can also spend much more than \$125,000. For instance, if you need a facility that will support sophisticated and memory-demanding graphics software for students in media production or journalism, you might need more expensive workstations. And it's important to remember that "state-of-the-art" is a temporal and relative quality; in fact, a rule of thumb in the business of purchasing technology is that the day you actually buy new equipment is the same day in which your equipment ceases to be considered "state-of-the-art." Visions of the next generation of computer-supported writing facilities have begun to emerge, but these visions are currently out of reach for most campuses because they require each student to carry either a personally owned or institutionally provided laptop computer. According to this configuration, computer labs and classrooms would no longer be a collection of networked workstations; they would be nothing more than a network itself. The student would bring his or her computer into a classroom and would connect to that room's network, probably through infrared or radio relays and not an actual plug of some sort.

The problem with the laptop-for-every-student model is that it obviously requires monumental, institution-wide policy changes, although some schools have made this leap. Beginning in the fall of 1996, each first-year student at Wake Forest University will be issued a new laptop. They will trade these computers after two years for newer models and keep them when they graduate. Most, if

not all, classrooms on campus will be networked. However, this program comes with a steep price tag: a \$3000 per year increase in tuition (\$12,000 over four years)—although only a third of this increase is earmarked for technology. Two of the primary benefits of this approach are that it solves the problem of fighting the loosing and expensive battle of trying to keep (working) state-of-the-art equipment in campus labs and classrooms and, by mandating a university-wide platform, teachers, students, and administrators can communicate and work together more seamlessly.

Software for the Computer-Supported Writing Facility: From Drill and Skill to the Virtual Classroom

Because hardware is more expensive and has a more substantial physical presence than software, decisions regarding equipment often receive too much attention. Selecting software that supports a particular writing program's vision is probably more important than selecting the machines themselves. As Gail Hawisher points out, each software design reflects specific conceptions of writing and writing instruction in the same way that an individual pedagogy reflects the perceptions of a specific writing instructor. I recommend selecting at least one, if not two, of the latest versions of mainstream word processing software such as WordPerfect, Word, or Ami Pro. Although neither of the latest versions of either Windows or Macintosh operating systems are without limitations and flaws, as industry standards, they are the most logical choices for workstation interfaces. If the facility offers connections to the Internet, each station should also be equipped with an Internet browser like Netscape so that students can access information stored on the World Wide Web (more on the WWW later). An Internet browser can be compared in some ways to a typical word processor: a word processor allows you to view files or documents that are almost always located within the user's desktop computer; an Internet browser also allows the user to view files, only instead of these files being located on a nearby desktop computer, they reside "out there" on the WWW. Thus, the infamous activity of "surfing the 'Net" requires browsing software. A computer-supported writing facility might also use hypertext or multimedia authoring programs, and desktop publishing software such as PageMaker or Quark Xpress is useful but is also a bit of a luxury.

However, the most important software decisions involve selecting programs designed specifically for use in a writing class. The first generation of this type of software featured rather inflexible programs that supported either drill and skill activities or served as heuristic prompts to help writers generate essays. A second generation of software emerged in the late 1980s and early 1990s; these programs, such as the Daedalus Integrated Writing Environment and Norton Connect, allow for much more dynamic activities. Their most attractive feature is the ability to facilitate networked classroom dialogues and exchanges. Some software packages offer capabilities that others do not; for

instance, Aspects, a program currently available only for Macintosh computers, allows everyone on a local network to simultaneously view changes to a text as the revisions are being made by either an instructor or a student. But a third generation of software is beginning to emerge. This third generation improves on other software in two ways: instructors and peer-editors will be able to comment more effectively on texts in electronic form, and they will be able to use writing software across the Internet instead of having to remain within the confines of a local network. Common Space, from Sixth Floor Media and Houghton Mifflin, is a third generation software package. According to a review by Greg Siering, "most of [Common Space's] functions are based upon the use of multiple columns for creating, comparing, and commenting on multiple versions of a document" (227). Common Space already features TCP/IP networking capabilities, meaning that its files can be easily shared over the Internet. Daedalus and Norton are currently (early 1997) working on Internet versions of their software.

Resources for Asynchronous Conversations: From E-mail to HyperNews

In the past few years, software originally designed for communication through the Internet has been a windfall for writing instructors who teach in computer-supported environments; they have discovered that a number of asynchronous and synchronous programs have effective applications for writing instruction. In this context, the term *asynchronous* denotes correspondence that does not take place in "real time," meaning that the activities of composing, sending, receiving, reading, and responding to messages each occur discretely, in separate spaces of time. Asynchronous electronic communication is analogous to sending letters back and forth through the post office. In contrast, synchronous electronic communication (discussed in the next section) is like a telephone conversation in that the exchange happens immediately, in "real time." Many of these programs are shareware, meaning that they are either free or very inexpensive. And because they are so inexpensive, campus system administrators routinely install these programs so that anyone with an e-mail account can use them; as a result, they are standard features on many institutional file servers used to connect to the Internet. Teachers who are creative and resourceful and whose students have e-mail accounts can use this software for many of the same activities that expensive commercial software is designed.

In addition to ordinary e-mail utilities like Pine and Pegasus, asynchronous e-mail resources include listservs (also known as discussion groups), newsgroups, and gopher sites. Listservs or discussion groups work like an electronic bulletin board that is read by subscribers or members who have joined a "list" or "group." In most cases, a member of a discussion group sends a message via e-mail to the bulletin board; this message is then automatically mailed to every subscriber on the list. Newsgroups are similar, except that the messages posted to the bulletin board are not automatically sent to subscribers;

users must typically retrieve these posts manually. Many teachers are finding ordinary e-mail, especially in conjunction with listservs, to be an effective tool not only for administrative tasks such as distributing class assignments and handouts, but also for conducting ongoing text-based conversations. In essence, anything that can take the form of text can be shared, duplicated, responded to, or commented upon by any member of a class using e-mail and/or a class listserv. Because listservs are relatively easy for campus network administrators to create and maintain, many instructors have individual listservs for every section that they teach. The exchange that takes place through listservs can be archived and even moderated if desired.

Gopher sites are electronic repositories for textually-recorded information; they're sort of like electronic file cabinets or library stacks for storing information. Writing teachers can use gopher sites to store syllabi, course materials, writing samples, readings, or student writing (with permission). In some configurations, students do not necessarily require e-mail accounts to be able to access information located in gopher sites; they might only need a workstation connected to the Internet. However, gopher sites are quickly being replaced by WWW sites, which are much more dynamic. In fact, new applications for the WWW, such as HyperNews, can combine features of e-mail, newsgroups, gopher sites, and web pages by generating a powerful, user-friendly, point-and-click hypertextual archive of online discussions.

Resources for Synchronous Conversations: From MOOs to Virtual Classrooms

In the original article, "Computers in the Composition Curriculum: Looking Ahead," Harris and her coauthors wrote, "One of the most tangible ways in which computers will affect the teaching of writing is to change the physical environment in which we teach" (35). However, in 1997, issues concerning the "physical environment" are often being recast in terms of the "virtual environment" because a small but growing number of writing programs have begun to experiment with courses that never or almost never meet face to face. Two of the most common objections to the proposition of the virtual writing classroom are "correspondence courses simply don't work" and "the student will lose something valuable in terms of face-to-face interaction with instructors and other students." Those who argue in favor of virtual classrooms counter the first objection by pointing out that today's virtual writing classrooms are different from the correspondence courses of the past. Currently, Internet "chat" programs known variously as MUDs, MOOs, MUSHs, and IRCs (among others) allow members of a particular class to conduct simultaneous or synchronous dialogues across great distances, and many instructors find that once they adjust their teaching strategies to online exchanges, the overall level of participation can improve dramatically. Proponents of the virtual classroom also suggest that our concern about face-to-face meetings may very well be a function of our egos as

teachers who enjoy a captive audience. They point out that effective learning may not in fact have that much to do with face-to-face meetings, especially if travel or domestic and career obligations are factored in as barriers that prevent many students from being able to participate in a class.

Chat program software, like the asynchronous resources mentioned previously, is often available for free, but it does make significant demands on the file servers in which the programs themselves are housed. As a result, campus systems administrators sometimes have strict or even prohibitive rules governing the use of chat programs. A number of campuses do not allow users to access chat programs at all, and other campuses restrict access to non-peak hours. Chat programs are also controversial. A frequently observed phenomenon that can only be described as "MOO addiction" has given teachers and administrators serious cause for concern. These programs allow the user to hold an online, synchronous textual conversation with, potentially, anyone who has access to the Internet. Chat users log onto places known as "worlds," inside of which are located various spaces often described metaphorically as rooms, cafés, hotels, bars, even writing centers. Within a particular "room" or even within a particular "cubicle" within a "writing center," any number of users can meet and talk to each other simultaneously. The lure of this type of social interaction seems to be very powerful for a number of people who find themselves "hanging out on the MOO" instead of working or sleeping.

While MOO addiction is exactly the sort of side-effect that many critics point to as an example of the deleterious nature of advanced technologies, we should be careful not to throw the baby out with the bathwater. A number of writing program administrators are conducting important and ground-breaking work through the use of chat programs, work that is very much a creative application of technology used to "bring people together." Jennifer Jordan-Henley and Barry Maid have collaborated across the Internet to create an online writing center in which graduate students from the University of Arkansas are able to tutor students miles away at Roane State Community College. In their virtual writing center, the writer first sends an e-mail draft of a work in-progress to the tutor. The tutor and the writer then schedule an online meeting to take place via a MOO in order to discuss the paper. These centers have become known as OWLS, or online writing labs. Currently Purdue University, The University of Missouri (Columbia), and the University of Texas (Austin) are among others that offer OWLs.

But despite the promising work of Jordan-Henley and Maid, the prospect of expanding writing classes into virtual space is potentially dangerous. In fact, of all the developments that this update covers, the advent of the virtual classroom may be the most significant issue a writing program administrator will have to consider in the near future. The concern is that virtual classrooms may serve as a mechanism whereby teachers of writing become further marginalized. If the virtual classroom allows for teachers to be no longer necessarily allied with a particular campus or institution, then it is possible that institutions will no longer feel the need to make long-term commitments to their faculty or writing

programs. Anyone who has a modicum and minimal qualifications can potentially be hired as a part-time instructor by any institution with online courses. Online classrooms, therefore, become extremely cost-efficient but suspicious ways to offer courses because not only do campuses no longer need to add expensive buildings, classrooms, and parking lots to expand their enrollment, they also might believe that they need not staff these courses with full-time writing professionals. And, unfortunately, precedents for this trend already exist.

The *Wall Street Journal* reported on September 12, 1994, that Phoenix University—a fully online, for-profit, accredited business school that has granted 60,000 degrees since 1976—has no tenured or full-time faculty; all of its 2,100 faculty members are “independent contractors, paid about \$1,000 to \$1,200 per course” (Stecklow A-1, 10). Consequently, while Phoenix University’s parent company, Apollo group, Inc., is on the move, it is doubtful that the futures of both its faculty and its students are as bright. And if the prospect of virtual classrooms currently seems far-fetched in your department or institution, think again. In 1989, Cynthia Selfe wrote, “It is not unusual for English faculty to return to school in September to find themselves involved in the administration of a new word-processing lab/classroom that has been established in their absence” (22). Today, more and more WPAs are finding themselves being suddenly asked or told to provide Internet-supported distance education courses, thereby potentially circumventing or countering what Harris, et al. properly identified as “our responsibility to determine the role computers play in the teaching of writing” (35).

The Emergence of a New Media: The World Wide Web

By all accounts, the World Wide Web is the most rapidly expanding area of the Internet. In one sense of the term, anything connected to the Internet can be considered part of the WWW, but when most people refer to the WWW, they are speaking of a particular type of interactive “site” or “node” on the Internet that has been typically composed in a computer language known as html (hypertext mark-up language). WWW sites are like gopher sites in that both are electronic repositories for information; however, WWW sites support multimedia, meaning that the user can access not only interactive text, but also photographs, graphics, audio, and even film. Like gopher sites, WWW documents can usually be read from any computer in the world that has the proper connection to the Internet. If the user knows the address or URL (universal resource locator) of a particular WWW site, he or she can access that site by using a web browser such as Netscape, unless it is protected by a password or a firewall.

In 1989, Harris and her colleagues stated that “In addition to changing how we teach and how students learn, computers are changing our perception of text” (39). They suggested that hypertext has the potential to reshape our understanding of textuality; however, their vision of the impact of hypertext had gone largely unrealized until the WWW suddenly became immensely popular,

beginning mainly in the summer of 1994. The significance of the WWW is not so much its multimedia and interactive characteristics as much as its combination of those qualities with global accessibility. Suddenly, sometimes even without an e-mail account, teachers of writing can use a mouse to click their way into and through CCCC Online, *JAC Online*, and information presented by the Alliance for Computers and Writing.

The WWW has tremendous potential in terms of writing program administration. Teachers can begin to publish syllabi, handouts, sample material, student writing, hypertexts, and even handbook-type instructions in permanent, interactive repositories that can be accessed from anywhere on the globe. One of the chronic problems from which teachers and writing program administrators suffer is that we operate too often in isolation. However, instead of relying on textbook companies, faculty from within a particular writing program or collection of programs can work collaboratively to author customized resources that promote a particular pedagogy. Through the WWW, a writing program administrator can also, from his or her desktop, quickly locate and print out a copy of a CCCC position statement in preparation for an emergency meeting.

But, of course, the WWW is not without its drawbacks. The Web's ability to store photographs means that pornography is readily available to anyone who has the inclination to retrieve it, but, so far, this problem has not been significant in postsecondary schools. What is significant about pornography on the WWW is that political factions use it as a reason to restrict, control, legislate, and, in essence, censor the free exchange of ideas that is the cornerstone of the Internet. We will all need to be active in making sure that the Internet and the WWW remain available for the unrestricted and democratic exchange of free ideas.

Computers and Writing: Beyond 1997

Thus, every decision that a WPA may make toward integrating computers into or even eliminating them from a particular program is loaded with significant pitfalls and rewards. And it seems as if the tremendous cost of advanced technology as well as its apparent power to alter quickly the shape of our cultures and professions means that these decisions can have extremely long-term repercussions. Compare, for example, the ramifications of a WPA's selection of a textbook for next fall's first-year composition course to the consequences of his or her decisions regarding the establishment of institutional precedents for the operation of virtual classrooms. We all wish we could accurately "look ahead," as Harris et al. tried to in their article. We all want to guide our writing programs in the best possible directions. However, in order to move successfully beyond 1997, writing program administrators will need to rely on up-to-date information as well as on long-term speculation. "Looking ahead" is always an intriguing and important enterprise, but we must also keep ourselves as equally informed about the present.

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- Stecklow, Steve, "Virtual U." *Wall Street Journal* 12 Sep. 1994: A1, 10.

Appendix:

Recommended Technology-Related Resources for WPAs

A. Print

- Computers and Composition: An International Journal for Teachers of Writing*. Ed. Cynthia L. Selfe and Gail Hawisher. Norwood: Ablex.
- Harris, Jeanette, et al. "Computers in the Composition Curriculum: Looking Ahead." *WPA* 13.1-2 (1989): 35-43.
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- Myers, Linda, ed. *Approaches to Computer Writing Classrooms: Learning from Practical Experience*. Albany: State U of New York P, 1993.
- Selfe, Cynthia L. *Creating a Computer-Supported Writing Facility: A Blueprint for Action*. Houghton, MI: Computers and Composition, 1989.

B. Online

- Alliance for Computers and Writing Homepage*; <http://english.ttu.edu/acw/>
- CCCC 1997 Online*; <http://www.missouri.edu/~cccc/97/>

Resources for Two-Year and Community College Teachers, by Donna Reiss; <http://www.infi.net/tcc/tcresourc/faculty/dreiss/engrsrc.html> and <http://www.so.cc.va.us/vcelsrc.htm>

WAC Homepage, by Larry Beason; <http://ewu66649.ewu.edu/WAC.html>

WPA-L and other writing-related discussion lists, see <http://daedalus.com/MBU/MBU.resources.html>

C. Software

Aspects, by Group Logic. (800) 476-8781; <http://www.grouplogic.com>

Common Space, by Sixth Floor Media/Houghton Mifflin. (800) 565-6247; <http://sixthfloor.com>

Daedalus Integrated Writing Environment, by The Daedalus Group. (800) 879-2144; <http://daedalus.com>

HyperNews, <http://union.ncsa.uiuc.edu/HyperNews/get/hypernews.html>

Norton Connect, by W. W. Norton. (800) 533-7904; <http://www.wwnorton.com/connect.htm>

D. Conferences/Workshops

Computers and Writing Annual Conference, for information visit the ACW-L web site (URL above) or contact the CCCC Committee on Computers and Writing.

Computers and Writing Intensive Classrooms, Michigan Technological University, Conference Department, 1400 Townsend Dr., Houghton, MI, 49931-1295. An annual two-week summer workshop for teachers of English, led by Cynthia Selfe and Gail Hawisher. <http://www.hu.mtu.edu/ciwic>



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