

Writing Technologies and WAC: Current Lessons and Future Trends (Editor's Introduction)

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Abstract: Taking as a touchstone the 1998 publication of *Electronic Communication Across the Curriculum* (Reiss, Selfe, & Young), this introduction to the special issue traces the technologies and writing topics that have endured, emerged, and evolved in the last decade.

"Oh, that is, like, so 20 minutes ago," laughs a group of undergraduates as they talk with me about the latest digital tools incorporated into our pilot, hybrid[1]writing courses. New Millennials, they are comfortable in a digital world defined by the Next New Thing.[2] Each next Next New Thing seems to arrive with dizzying speed, for digital technologies are introduced into the commercial and educational sectors with all the hype that American marketing can muster. Most of the latest Next New Things in higher education, as Susan McLeod and Eric Miraglia (2001) note, appear to promise administrators and faculty more efficient ways to deliver instruction to ever larger classes, and they tend to privilege a "banking model of education" (p. 8). Nonetheless, technologies and uses for existing technologies are myriad. Several Next New Things have been developed or adapted by faculty interested in Writing Across the Curriculum (WAC) and Writing in the Disciplines (WID) programs to create "cognitively rich" (McLeod & Miraglia, 2001, p. 8) activities, spaces, and media for and with students. In this digital culture that privileges rapid change, it may feel as though educators are the caucus attendees in Wonderland, running energetically just to keep in place.

As Alice found, though, it is important to step away from the 20-minute race to take a longer perspective. Acknowledging that both writing technologies and WAC/WID programs have evolved across the past decade, this special issue of *Across the Disciplines* illustrates some of the continuing and emerging trends in the field. Its main point of comparison is the influential volume published in 1998, *Electronic Communication Across the Curriculum* (*ECAC*, edited by Donna Reiss, Dickie Selfe, and Art Young), with a nod towards an updated article by Reiss & Young published in 2001. The *ECAC* collection provided an overview of approaches that key scholars were implementing to bring WAC/WID principles together with electronic technologies, and in particular, with the personal computer. What, after a decade of Next New Things, can be said about the topics that have endured, those that have emerged, and those that are just beginning to evolve?

What Has Endured

Over the past decade, several topics identified in *ECAC* have remained pertinent, although they have acquired new features. As in *ECAC*, this current collection of articles assumes broad definitions of

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technology and of WAC/WID programs. Speaking most broadly, a technology is a means to accomplish some purpose. Cynthia Selfe's (1998) foreword to *ECAC* includes both computers and WAC (a "technology of teaching," p. ix) under that umbrella. In both collections, specific brands of technologies are analyzed (e.g., MSWord). However, the discussion typically applies to the broader technological category (e.g., word processor). Also, as in the *ECAC* collection, the definitions of WAC/WID today include the notion that writing instruction ought to be included in courses and programs beyond the first-year composition course. Such initiatives typically include support for faculty who are engaged with writing instruction—support such as workshops, peer networks, and perhaps financial or course release incentives for developing instructional materials. The current collection treats WAC and WID as closely allied. The writing-to-learn techniques that are often said to characterize WAC walk hand-in-hand with the techniques for learning-to-write in specific disciplines that characterize WID. The term WAC by itself often refers to both WAC and WID.

Most important, despite changes in funding and administrative structures in the past decade, WAC/WID programs have maintained a significant presence in higher education. Through a pair of surveys, Christopher Thaiss, Tara Porter, and Erin Steinke (2008) have been updating the McLeod and Shirley (1987) census of programs. (For further information, see the International WAC/WID Mapping Project site at <http://mappingproject.ucdavis.edu>) Thaiss et al.'s first survey, completed in July 2008, addresses WAC/WID programs in the United States and Canada. The second survey, still underway, seeks to map WAC/WID programs elsewhere in the world. Thaiss et al.'s preliminary results from the U.S./Canada survey suggest that although many of the programs extant in the McLeod & Shirley (1987) census have disappeared, a compensatory number of programs have been initiated or revived.^[3] The administrative shape of original and new programs varies widely: some programs have retained their original founders; other programs exist as writing-intensive course requirements; still others have formed strong alliances with writing centers and stand-alone writing programs.

What has changed most is that state and federal funding for higher education in the U.S. has declined in general (McLeod & Miraglia, 2001), and funding for WAC/WID programs per se has softened. WAC and WID are no longer the Next New Things that draw grants. Rather, granting foundations currently are promoting technology initiatives that may or may not include writing instruction as an explicit component. For example, in 2006, the MacArthur Foundation launched a Digital Media, Learning, and Education program to study "how digital technologies are changing how young people learn, play, socialize, exercise judgment, and engage in civic life."^[4] Similarly, the Mellon Foundation offers initiatives in Scholarly Communications (including innovations in scholarly publication and collaboration) and Information Technology (including work on portals and "new technical approaches to the archiving of textual and multimedia materials that require improved search and storage techniques and improvements in user-interfaces"^[5]). In particular, technologies that support online and distance education have generated considerable interest in recent years.

The shift in funding patterns suggests that WAC/WID programs may find—and may need to find—allies in technology-based initiatives on campuses. Yet, as in the *ECAC* collection of 1998 and the Reiss and Young update of 2001, questions remain about whether and how a WAC/WID program should adopt an identity as an electronic communication program. The issue is not so much whether technologies should be included, but whether they should be foregrounded. As Thaiss (2001, pp. 306-307) muses, should a specific campus or program treat multimedia as an add-on to "writing," already encompassed within "writing," or a topic deserving its own initiatives? Similarly, have technologies grown so ubiquitous that they may be treated as unobtrusive or transparent? Should WAC/WID programs promise to assist faculty in teaching students technology "skills"?

The answers to these questions are significant. Although technologies may be treated as invisible, different technologies offer very different affordances that affect writing practices both directly and indirectly. The concept of an affordance was popularized by Donald Norman (1988/2002, *The Design of Everyday Things*) as "the perceived and actual properties of [a] thing, primarily those fundamental properties that determine just how the thing could possibly be used" (p. 9). In other words, the physical capacities of a thing are further refined by socially negotiated value systems that suggest which activities are typical or appropriate for specific contexts. To take an example, word processors offer the technical capacity to cut and paste text, but under different circumstances, a pasted text may be defined as plagiarism or as boilerplate. Research (see Hawisher, LeBlanc, Moran & Selfe, 1996, for a summary) has shown that word processors' various affordances have directly altered writing practices: students write and revise more than they did before processors were introduced. Likewise, the affordances of the various technologies employed on a campus impact writing instruction. They may help shape what counts as school-based versus self-sponsored writing (i.e., should instructors incorporate social networking sites such as Facebook in courses?); which aspects of writing will be privileged (i.e., to what extent should drafts be included in electronic portfolios?); which pedagogical interactions will be valued (i.e., will instructors use quizzing software? collaborative software?); and who potential audiences for texts might be (i.e., will assignments and responses be posted to the web? what implications for FERPA^[6] may be involved?). As this collection illustrates, different WAC/WID programs and faculty have made different choices regarding how visible their own technologies will be, as well as regarding how they might engage explicitly with writing technologies used by a campus.

Finally, the myth of the Next New Thing is that the latest innovation simply replaces previous inventions. In most cases, however, the earlier inventions shift to fill specific new niches and/or they are remediated (Bolter & Grusin, 1999). In 1998, email and listservs had joined IRCs (instant relay chats) and electronic bulletin boards as extremely popular communication technologies. Several discussions in *ECAC* focused on how instructors might harness students' enthusiasm for email to manage assignments, to teach students about audience awareness, and to facilitate peer review. In 2008, as my undergraduates have put it, "Email is for talking with old people." They associate email primarily with communicating with teachers, parents, and employers. To communicate with friends, they have channeled their energies into texting and instant messages (recalling the IRCs), Facebook, and other forms of social networking. Instructors now wonder whether to incorporate these technologies into the classroom. Even so, email, listservs, and bulletin boards remain very popular, and they will not disappear anytime soon. They particularly have been established in an educational niche, and much of the earlier advice still stands.

Similarly, *ECAC* 1998 offered advice on how to extend existing resources into the online world. Chapters spoke of building websites, such as Purdue's Online Writing Lab (OWL), as an extension of Writing Center services. Others commented on electronic journals (e-journals) as an extension of classroom talk and paper journaling. Today, online sites may still be seen as extensions of traditional resources and practices. However, many online sites are likely to be full remediations of earlier resources. In other words, newer materials may absorb the characteristics of older media, and vice versa (Bolter & Grusin, 1999). These sites are not necessarily extensions or supplements, but primary resources. For example, OWLs need not be dependent upon a face-to-face writing center; all interactions between writing personnel and clients may occur electronically. Similarly, electronic journals have evolved into blogs, which may have reader circles beyond the classroom that will never meet face-to-face. Many of the online resources begun as extensions in 1998 have become firmly established in their own right in 2008.

What Has Emerged

In naming technologies and trends that have emerged since 1998, it is tempting to begin with the bells and whistles of the latest technologies: the relative ease of producing and distributing multimedia (text, audio, visual, and in the latest screen hardware, tactile^[7]), and the emergence of a social networking culture, or Web 2.0. It is also tempting to begin with a discussion of the concomitant, sweeping challenges to traditional intellectual property laws that new media have raised. But, as the articles in this collection suggest, a more fundamental shift deserves to be emphasized first. An early moment in this shift was the release of the first graphics-based browser, Mosaic, in 1993.^[8] At that time, humanities scholars began to take note of the Internet's capacity to facilitate access to individual digitized texts.^[9] Almost overnight, it seemed, it became easy to access a lengthy novel to examine key words in context. One of the leaders in digitization and a source of digitized texts was the University of Chicago's ARTFL Project,^[10] whose director at the time was Dr. Mark Olson. I remember when he dampened my own enthusiasm for potential plans to digitize *Finnegans Wake* by citing the ARTFL Project's philosophy and goal (paraphrased here): "The true power of computers is not in analyzing individual texts. You could do that without a computer. The true power of computers is that they let scholars access and analyze collections of information that they couldn't handle otherwise" (personal communication). Since the mid-1990s, networks of mainframes, servers, and personal computers—networks that were widely updated and synchronized as a consequence of Y2K fears—have realized computers' potential to allow individuals to access, organize, and manipulate massive collections of information. For educators, those capacities have been realized particularly in two main directions: the implementation of course management systems and the construction of innumerable archives.

Course Management Systems

Perhaps the single greatest difference in educational settings between *ECAC*'s world of 1998 and the current collection of 2008 is the widespread presence of course management systems (CMSs).^[11] The leading commercial products, Blackboard and WebCT, were each first launched in 1997, and at the time of *ECAC*'s publication, they had not yet made their mark. Since then, the now combined Blackboard-WebCT has been joined by home-grown systems and international projects, notably Moodle (begun in 1999) and Sakai (~2005). The strength of CMSs is their capacity to organize materials. Their designers typically conceive of CMS use in large-scale terms: a means to organize all of a campus's courses; tools for automatic registration for large survey classes; the capacity to link and coordinate multiple sections (and TAs) for the same course; the ability to automate all assignments and grade reports; storage for several terms' worth of course materials and portfolios; the facilitation of collaboration across disciplines and institutions; and the capacity to support distance-education courses. A potential weakness of campus CMSs is that they may not be designed to accommodate techniques in writing instruction. For example, Sakai's out-of-the-box design allows an individual student to turn a paper into a "drop box" that only the instructor may access. To enable students to use the online workspaces to upload and download papers for collaboration and peer review, however, requires an instructor's ingenuity and technical workarounds.^[12]

Paralleling the development of these campus CMSs has been the emergence of a number of software programs and systems to support writing instruction per se. When *ECAC* was published, the well known choice was the Daedalus Integrated Writing Environment (also called DIWE or Daedalus). The system initially ran only on local area networks (LANs), but it is currently available in a web-based format. Daedalus was the leading networked software to support different writing processes,

including prompts to facilitate early drafting and a chat environment to facilitate student discussions and peer review.

Since 1998, Daedalus has been joined by other systems that have become prominent, most of which have been designed or adapted to support teacher commentary on texts as well as extensive peer review. Some instructors have modified public services originally conceived as technologies to support business endeavors or collaborations of like-minded groups. Such services include, for example, Google Docs and Yahoo Groups. In the educational sector, commercial systems such as Bedford/St.Martin's Comment and Pearson's MyCompLab have been designed with writing courses in mind. Likewise, Michael Palmquist's Writing Studio has emerged as an open system that instructors can use to support writing instruction. Perhaps most significant, several systems can be used as large-scale CMSs to serve entire writing programs, particularly the compulsory first-year courses. Among the largest of these home-grown systems have been TOPIC/ICON at Texas Tech and <emma> at the University of Georgia.

One issue addressed repeatedly in the last decade is the extent to which a campuswide CMS can be tailored to explicitly support writing instruction, or integrated with the software systems designed to do so (see Neff & Whithaus, 2007, for a thoughtful discussion of these issues). Different campuses have developed different configurations. One challenge for WAC/WID programs is that many of the affordances of popular campus CMSs privilege the delivery and testing of information (for instance, the capacity to upload and download course handouts and Powerpoint slides; the many quiz functions). Affordances such as these may promote thin notions of writing. For example, the latest software being incorporated into many CMSs is a plagiarism detection service (PDS). The PDS is desired by many faculty members across the campus to forestall the fraud perceived as rampant, especially in large lecture courses. However, PDSs operate primarily by flagging matching text. They typically do not address the more complex issues involved in intertextuality, as well as in contextual differences regarding how, when, and why to attribute resources (Howard, 2007). Those writing issues need to be addressed by informed teachers.

The other side of this CMS coin is an opportunity: CMSs provide affordances that may reach an entire campus, and thus they may be allies for WAC/WID initiatives. In particular, CMSs such as Moodle and Sakai invite (and even require) that campuses employing them "give back" to their respective communities by contributing modules, services, tools, and widgets. According to Neff & Whithaus (2007), distributed learning systems like CMSs have been and will continue to be under pressure to evolve so that not only do they deliver information to large numbers of users, but they also support students' needs by allowing more opportunities for faculty and peers to provide individuated attention to learners. For WAC/WID initiatives, the CMSs may provide a platform for showcasing courses and instructional materials that address students' writing; for connecting faculty across the curriculum and institutions; for incorporating resources (e.g., the library; online sites such as CompPile[13] and the WAC Clearinghouse) into the system; and for modifying some of the thin writing affordances with more cognitively rich capacities. Several of the articles in this special issue illustrate how various faculty are experimenting with systems such as Calibrated Peer Review, WebCT, and Moodle, and are embedding their WAC/WID perspectives into courses, online tutoring systems, and existing campus networks.

Archives

A CMS represents one version of computers' capacity to manage large collections of materials. The other version that has profoundly influenced education has been the archive. Traditionally speaking, an archive represents a collection of selected materials that has principles of organization: a value

system (both explicit and tacit) that determines what is included or excluded, and a means for categorizing individual artifacts. That definition has been strained by new media and the Internet, as the number of stored artifacts has soared and as search engines have broken down boundaries among collections.[14] Nonetheless, setting aside the debate over whether the entire Internet can properly be called an archive, it is important to acknowledge that the massive digitization and traditional archiving projects begun in the 1990s have proceeded apace. In 2008, educators, students, and the public have more ready access to archives of selected materials in various media than ever before.

In WAC/WID programs, as well as in writing programs in general, educators are beginning to harness the power of electronic archives to begin to conduct the replicable, aggregable, and data-supported research on student writing that Haswell (2005) has recently urged writing scholars to pursue. To be sure, there were collections of student papers and analyses of them before computers (see Brereton, 1995; Richards, 1929/2004). However, electronic archives are making it easier for more writing scholars to manage ever increasing databases. Existing systems such as CMSs and electronic portfolio software provide established avenues for generating an archive because they already preserve student work. Researchers are also establishing databases specifically in support of research projects. For example, the Stanford Study of Writing (<http://ssw.stanford.edu>) is a longitudinal study of classroom-assigned and self-sponsored writing. It has tracked 189 Stanford undergraduates across five years by asking them to deposit all of the writing they have done in four years of college, plus one year beyond. It has also preserved recurring interviews with 39 of the 189 participants (Rogers, 2008).

In 2008, the question that has emerged for these archives of student work is, quite simply, "Now what?" More articulately, the question might be phrased, "How do we code and analyze all of this data?" One recent response has been Paul Rogers's (2008) coding and analysis schema for the Stanford Study, which has been used to document the development of students' awareness of disciplinary genres, sense of real audiences, and incorporation of multiple voices as they move through the college curriculum and from one discipline to another. The articles in this special issue represent smaller archives than Stanford's, but they cite and develop a variety of coding schema for analyzing archives of student work from WAC/WID perspectives.

WAC/WID faculty can also anticipate that continued archival innovations in Library and Information Science will impact writing instruction. Questions regarding how to teach researching techniques to students are not new. However, compared with *ECAC*'s world of 1998, digitized archives of library holdings in 2008 have become more extensive, more thorough, and more mutable. In 1998, several publishers and services (e.g., JSTOR) were making digitized versions of their current journals available, but they had not yet completed—and in many cases, had not even started—the digitization of the back issues.[15] In 2008, the full run of a journal is more likely to be available. In addition, Google has begun to digitize the book holdings of academic libraries so that they will be more-or-less accessible (depending on copyright status) to a range of users. Finally, but not least, the World Wide Web has made a host of non-academic archives readily available to searchers.

These circumstances have elicited responses from various stakeholders regarding issues of information literacy. Students' abilities to perform research have become a priority, in part because requirements for student writing appear to have shifted. Over the past two decades, there has been a marked shift in first-year writing courses away from personal narratives to academic argumentation, particularly researched arguments (Lunsford & Lunsford, 2008). Since *ECAC* 1998, what have emerged are several official steps to emphasize issues of information literacy. In 2000, the Association of College and Research Libraries / American Library Association (ACRL/ALA) released information literacy standards for higher education.[16] Similarly defined standards became the basis

and justification for a new exam of information-communication technology competencies, iSkills, released by the Educational Testing Service in 2005.[17] It remains to be seen how these official literacy statements and assessments may affect WAC/WID programs. However, a theme that runs throughout the current collection of articles is the challenge of teaching students to conduct appropriate research in this vast digital landscape.

Intellectual Property Issues

The rise in archives has also brought about new patterns for distributing academic materials, and with the changes in distribution patterns have come pressures on established intellectual property laws. Most important, since *ECAC* 1998, the Open Source and Open Access movements have achieved much more prominence and have been a topic for U.S. governmental action. An open source software program allows programmers to view, alter, and adapt the underlying code; it is contrasted with a proprietary program that discourages such use. The Open Source movement gained impetus in the last decade partly in response to (perceived) threatened monopolies by commercial interests, notably by Microsoft. One of the Open Source expectations is that programmers and users will form communities around a software system, so that all can share responsibilities for identifying bugs, devising new applications for the code, and promoting the system's use. In March 2008, the Open Source movement was endorsed by a CCCC resolution that encourages writing faculty and campuses to consider using open source software whenever possible.[18]

The Open Source movement has gained considerable momentum, and it has served as a model for related movements, such as Open Access. Open Access became a popular rallying movement partly in response to extensions of U.S. copyright protections that the entertainment industry (in particular) had requested. In 1998, the Copyright Term Extension Act, said to have been proposed at the behest of the Disney Corporation, extended the length of copyright protection for individual and corporate works, and thus prevented many materials from entering the public domain.[19] Likewise, in 1998, the Digital Millennium Copyright Act was passed to restrict technologies designed to circumvent features that prevent the copying of materials. Since then, peer-to-peer file sharing systems, such as the music-sharing systems Napster and Grokster, have been challenged and have lost in courts. Although the primary targets of such acts and lawsuits were related to entertainment, particularly music and video, laws such as these have also caused substantial negotiation over academic needs such as fair use. Issues over whether multimedia can be reproduced especially have caused legal clashes.[20]

For many academics, the specific catalyst for the Open Access movement came when publishers began to increase their journal prices. In particular, the prices of scientific journals have risen at extraordinary rates that have broken academic budgets. Such policies provoked a worldwide boycott of various journals by scientists and the establishment of the Public Library of Science in 2001,[21] and, more recently, the establishment of several national and international mandates for the mutual sharing of academic research. In December 2007, with the support of university presidents, President Bush signed into law a policy implemented by the U.S. National Institutes of Health. The NIH Public Access Policy states that all funded investigators must submit (to PubMed Central) "an electronic version of their final, peer-reviewed manuscripts upon acceptance for publication, to be made publicly available no later than 12 months after the official date of publication." [22] Other proposed acts (such as the Federal Research Public Access Act, 2006) would extend similar requirements to other federal granting agencies. In addition, guidelines for some granting programs have encouraged grantees to share not just the publications, but the data.

These policies have begun to change and will continue to change the landscape of academic publishing across the disciplines. To just brush the surface of some of these changes: First, with increased public and interdisciplinary access to academic publications comes a responsibility for specifying the contexts that need to be consulted to understand that information. Such is John Willinsky's latest task for the Public Knowledge Project:[23] to build a web-based system that offers a journal article, plus links to information (e.g., the author's biography, related texts, reviews, and so on) that enable readers to make sense of the article and to assess its trustworthiness. Second, universities have been renegotiating with faculty members over intellectual property rights. On one hand, several have begun institutional repositories that encourage or require faculty to archive their journal publications in the same manner as PubMed (e.g., University of Kansas). Although faculty often welcome the opportunity to make research more openly available, such efforts sometimes have been hampered because, on the other hand, universities have also made more problematic, proprietary claims over faculty members' instructional materials. Finally, the Open movements have been accompanied by faculty initiatives to incorporate a much wider range of publication venues and media. Speaking to their own networks of professional contacts and students, and sometimes adopting stances as public intellectuals, they have distributed materials via blogs, podcasts, Youtube videos, and so on. Again, it remains to be seen how fully these publication changes will be taken into account in WAC/WID programs, but it is significant that this collection contains a nuanced examination of the Open Source movement.

Multimedia & Web 2.0

The Open movements and the accompanying changes in academic publication formats are echoes of changes in a larger digital culture. In *ECAC's* world of 1998, email, lists, chatrooms/bulletin boards, websites, and text-based MOOs[24] were among the primary technologies for interacting digitally. In 2008, the list of technologies has ballooned, including blogs that have evolved from web designers' logs to diary-like journals to news feeds; video editing and sharing software found on ever more powerful digital cameras; peer-to-peer networking programs; social networking sites such as MySpace and Facebook; avatars and graphics-oriented environments found in sites such as SecondLife; shared authoring software such as wikis, represented especially by the open encyclopedia, Wikipedia; new screen-capture software such as CamStudio/Camtasia Studio; and, not last or least, the release of increasingly miniaturized devices such as mobile phones, recorders, laptops, and mp3 players.

Moreover, although collaboration per se is not new, electronic interactions and collaboration have acquired a new nuance. Participating in electronic networks has increasingly moved away from the activity of a few (i.e., geeks) to an expectation of popular culture, encouraged in part by commercial interests. For example, the last decade has seen the popular rise of Massive Multiplayer Online Role-Playing Games. These gaming platforms, primarily based on heroes destroying villains (or vice versa), support distributed players who likely will never meet face-to-face. The players interact through the text, visuals, and audio supplied by the gaming platform, but they also coordinate their play via technologies external to the platform, such as Internet and mobile phone services, instant messages, webcams, texting, and so on. It is this expectation for almost constant engagement with technologies, many of which employ multimedia channels, and for collaboration with various social and professional networks, that has been dubbed Web 2.0.

For WAC/WID programs, two aspects of these emergent forms of collaboration deserve special attention. First, online participants are developing etiquettes and protocols for interactions that directly impact writing. For example, technologies such as wikis appear to afford equal access to authoring and editing texts. However, researchers have found that participants on sites such as

Wikipedia or fanfic (fan fiction) webs often begin to (re)form hierarchies on the basis of the number of postings or a ranking system (e.g., see Starke-Meyerring, forthcoming, on Scholarpedia). Second, the Web 2.0 revels in intertextuality. It is a culture of remixing, in which archives of all kinds and innumerable websites provide an endless supply of digital materials to be combined and recombined. Composers often expect those materials to be recognized or at least identifiable, for it is also a culture of memes, motifs that are rapidly repeated. A theme for consideration is how these collaborative and intertextual practices generate expectations not only for digital but also for traditional forms of writing.

Indeed, far too much research on computers and writing has been done in the last decade to summarize fully here. In addition to the interest in Web 2.0 culture, one of the more significant trends has been an interest in theories of visual rhetoric (e.g., Handa's 2004 collection). In part, the topic builds upon a long-established history of concern about how images relate to alphanumeric text in, for example, business and scientific documents, as well as in art, design, and architecture. Another has been the evolution of a field called New Literacy Studies, which began with interests in ethnographic and sociocultural approaches to literacy research and which has now integrated interests in the new kinds of literacy competencies afforded by technologies (see especially Knobel & Lankshear, 2007; Lankshear & Knobel, 2003). I will suggest, however, that the impact of this research on WAC/WID has varied, because of the varying degrees to which WAC/WID programs have foregrounded electronic communication. The articles in this special issue illustrate this variance.

What Is Beginning to Evolve

Peering into the future is perhaps as hazardous as following a white rabbit into a rabbit hole – or should that be into the Matrix?[25] Nonetheless, there are indications of substantial trends for WAC/WID as well as for educational technologies. Most important, WAC/WID appears to be gaining momentum as an international initiative. To be sure, writing research and instruction in the disciplines and across the curriculum have been carried out in numerous countries. However, it can be argued that scholars around the world have not been as aware of each other's research traditions as might be useful. That lack of familiarity stems from differences in languages, but also from differences regarding where writing instruction and writing research are housed. In Mexico, for example, the Benemérita Universidad Autónoma de Puebla is establishing a Writing Center comparable in the U.S. to interdisciplinary centers funded by the National Science Foundation. In Europe and Australia, writing research is often found under the auspices of Linguistics and cognitive Psychology. In China, it is found in a discipline called "Writingology" (Chen, forthcoming).

Various international factors—such as the moves toward global commerce, the speed of electronic communication, and the predominance of English in science publications—have renewed interest in exchanging information regarding writing instruction and research. Likewise, regional processes such as the Bologna Declaration (1999) have encouraged change. The Declaration primarily deals with how university transcripts are kept and coordinated in 22 European/Scandinavian countries, but several other reforms (such as a mandated move towards using portfolio assessments in Norway[26]) have piggybacked on the Bologna Process.

The signs of change include the fact that the National Network of WAC Programs (founded in 1981) became the International Network of WAC Programs in 2005. In addition, there has been a move toward establishing international writing research conferences[27] as well as international journals.[28] Such momentum has also been fostered by the detailed theoretical, descriptive, and comparative work by scholars such as Tiane Donahue (2004), as well as by Christopher Thaiss, Tara

Porter, and Erin Steinke (2008). As these professional networks form, further international collaboration and exchanges can be anticipated.

It can also be anticipated that as technologies continue to evolve, so will the configurations of their use in WAC/WID programs—particularly as discussions over assessment procedures progress. As the theme of the upcoming 2009 Computers & Writing conference suggests, electronic technologies are becoming ubiquitous. Electronic devices have simultaneously become smaller, more mobile, and more powerful, and that trend will continue. They are also becoming embedded into more and more materials. If historical accounts of technology may be used to predict the future, this ubiquity may prove to be a double-edged sword. On one hand, increased access to data via mobile devices such as the iPhone opens more venues for students and instructors to do research, access information, and work collaboratively. Likewise, devices such as "clickers" allow instructors in large lecture classes to interact with each individual student in their sections. On the other hand, the ubiquity of devices may also tend toward increased surveillance, as the capacity (for example) to know exactly how long students stay logged into a course site may lead to renewal of Taylorism. How the pressure to continually assess students and provide accountability in the various disciplines of higher education will play out remains to be seen.

Welcome to This Special Issue

What can be seen here, however, is a rich variety of responses to the issues engaging scholars today, and what can be heard are a multitude of perspectives. This collection begins with two articles that address administrative concerns: William Klein and Suellynn Duffey report on their negotiation of an administrative mandate to implement technologies, whereas Morgan T. Reitmeyer revisits and takes stock of how technology is being used in a group of initiatives first reported on in *Programs that Work* (Fulwiler & Young, 1989). The next three articles report on research conducted on three online writing systems: an online tutoring system (Judy Artz, Kristine E. Barnett, and Jessyka Scoppetta), a hybrid sophomore-level research writing course (Christopher W. Dean), and a recently developed peer review system called Calibrated Peer Review (Tracy Volz and Ann Saterbak). From there, we move to a very nuanced account of intellectual property issues, as Brian D. Ballentine offers a critique of the Open Source movement. Next, two articles address the complexities of online presentation and collaboration, as Carolyn Sterling-Deer examines how education students represent themselves via electronic portfolios, and Dirk Remley discusses the intricacies of collaboration across two sections of a business course. Finally, the collection circles back to an administrative theme as Lillian Bridwell-Bowles, Karen E. Powell, and Tiffany Walter report on their multimodal communication across the curriculum program.

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Notes

- [1] Partially online; also called "blended" courses in Education discourse communities.
- [2] One knows that a catch phrase has become popular when the U.S. State Department adopts it for a journal issue to teach (international) children about innovation: *The Next New Thing*, special issue of *eJournalUSA*, at <http://usinfo.state.gov/journals/itsv/0108/ijse/ijse0108.htm>
- [3] http://mappingproject.ucdavis.edu/programsurvey/survey_closed/postSurveyResults/. Thaiss (forthcoming) also expands on these results.
- [4] (para. #1) http://www.macfound.org/site/c.lkLXJ8MQKrH/b.946881/k.380D/Domestic_Grantmaking_Education.htm
- [5] (Overview, para. #1) http://www.mellon.org/internet/grant_programs/programs/rit
- [6] The Federal Education Records Protection Act, which defines educational records as private. There have been debates about whether assignments count as educational records, and many campuses have instituted

more restrictive rules about posting materials than FERPA mandates. See, for example, the May 8, 2008, commentary provided by the American Council on Education, available from EDUCAUSE, <http://net.educause.edu/ir/library/pdf/epo0806.pdf>.

[7] An example includes the Fogscreen, which is a display screen composed of fog held in place by fans. With a data glove or other input device, it allows users to reach 'into' the screen to manipulate projected objects (see Breisinger, et al., 2006; Ford & Höllerer, 2008). A more prosaic example is the Nintendo DS, which has some programs that distinguish between someone touching the screen and someone blowing on it.

[8] For a fuller account, see Hawisher, LeBlanc, Moran, & Selfe (1996).

[9] *Alice in Wonderland* was among the first. See Hart (1992), The Project Gutenberg philosophy (continued), para #4, [http://www.gutenberg.org/wiki/Gutenberg:The History and Philosophy of Project Gutenberg by Michael Hart](http://www.gutenberg.org/wiki/Gutenberg:The_History_and_Philosophy_of_Project_Gutenberg_by_Michael_Hart)

[10] The Project for American and French Research on the Treasury of the French Language (ARTFL).

[11] They are also called Learning Management Systems and Virtual Learning Environments, among many other terms.

[12] For an account of Sakai and its affordances, please see Lunsford, et al. (2008).

[13] Because the traditional bibliographic services (MLA Bibliography, Web of Science) either do not catalog composition journals or tend to scatter the citations among them, CompPile has been conceived by Richard Haswell and Glenn Blalock (2004-current) as a unified bibliographic site to collect references relevant to writing studies. It can be found: http://comppile.org/search/comppile_main_search.php

[14] See Geoffrey Bowker's (2006) work on redefining archives as memory practices.

[15] In interviews I conducted with scientists in 2001, they were still complaining that articles published pre-1995 were not available.

[16] The Information Literacy Competency Standards for Higher Education (2000), which again endorsed the ALA (1989) definition of information literacy as the capacities to "recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information" (cited in 2000 report, p. 2).

[17] The exam was piloted as the ICT Literacy Assessment and then released as iSkills. For an account of its development, see Tyler (2005).

[18] I was (and am) Chair of the CCCC Intellectual Property Committee, a co-sponsor of the resolution with the CCCC Committee on Computers in Composition and Communication. <http://www.ncte.org/cccc/gov/resolutions/2008>

[19] It is also known as the Sonny Bono Act.

[20] For summaries and analyses of these key cases and events, please see the accounts published by members of the CCCC IP Caucus and CCCC IP Committee, *Top Intellectual Property Developments of the Year* (Logie, 2005; Logie, 2006; Ratliff, 2007a) located at <http://www.ncte.org/cccc/committees/ip>. See also Rife (2006).

[21] For an account, see <http://www.plos.org/about/letter.html>

[22] Para. #1 — <http://publicaccess.nih.gov/policy.htm>. For a discussion, see Ratliff's (2008b) report, "The National Institutes of Health open access mandate: Public access for public funding," <http://www.ncte.org/cccc/committees/ip/2007developments/nationalinstitutes>

[23] The Public Knowledge Project is located at <http://pkp.sfu.ca/>. A report on the PKP's "reading tools" (Siemens, Willinsky, Blake, Newton, Armstrong & Colahan, 2006) can be found at http://etcl-dev.uvic.ca/public/pkp_report/

[24] Multi-Object Oriented user domain. A MOO was based on role-playing games such as Dungeons & Dragons, as well as on text-based adventure games such as Zork. Participants would move through a textual environment in which different settings were described and different automations ("bots") would interact. A MOO supported multiple users simultaneously, so participants could interact with each other as well as with the environment.

[25] *The Matrix* (Wachowski & Wachowski, 1999) begins with character Neo being adjured to "Follow the White Rabbit" to an underground resistance organization.

[26] Olga Dysthe has been a leader of this research. See Dysthe, Steinar & Lima (2007); Dysthe (forthcoming).

[27] Such as the regular International Symposium of Studies on Genres in Brazil, conferences sponsored by the Canadian Association for the Study of Discourse and Writing, the series of Santa Barbara Writing Research conferences, and the European Association for Research on Learning and Instruction (EARLI) conferences.

[28] Such as the newly founded *Journal of Writing Research*, edited by Luuk Van Waes (U of Antwerp, Belgium); Denis Alamargot (Poitiers, France) and Gert C. W. Rijlaarsdam (U of Amsterdam, The Netherlands), at <http://www.jowr.org/>.

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