

**The Dark Side of the Web:  
Online Resources, Learning, and Scholarship**

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In a recent exchange on a listserv for Slavic librarians, Diana Green of New York University wrote that "the nature of scholarship is being changed by technology". She pointed to the damage that transferring print materials out of the stacks and into remote storage sites has done to the venerable scholarly practice of serendipitous shelf-browsing and complained that "scholarship seems to be more and more about less and less—technology seems to discourage synthesis by forcing researchers to over-focus". In the end, though, she succumbed to self-doubt, concluding "But what do I know?"

In fact, I think Diana knows a lot. She's right: information technology is changing scholarship, and not always for the better.

This paper is about the dark side of the World-Wide Web. Before I examine this terrain in more detail, however, I'd like to be clear about several things. First, I'm not against the Web as such. I'm not here to peddle nostalgia for the good old days of paper, pencil, and index cards (even though I think that those humble tools have their good points). Second, like most other librarians I realize that the Web does some things extremely well. I'd better, since I've spent my entire library career designing Web-based resources.<sup>1</sup> Finally, I believe that, on balance and despite some unfortunate misconceptions, the Web has been good for our profession and for the people we serve. Thanks to the Internet and the Web, Slavic librarians in the United States and their colleagues in other countries can remain in virtual contact throughout the year, independently of conferences and meetings. Slavic librarians use the Internet to trade information about vendors and book prices, verify bibliographic citations, request copies of materials not in their collections, and discuss issues affecting the profession generally. It is now possible to read attractively formatted online versions of Russian and East European newspapers and magazines. Librarians, scholars, and students can use their desktop computers to listen to broadcasts in Russian, Polish, and other languages, and even watch television programs and other video clips. They can participate in moderated online discussion groups on a wide variety of topics in our field. They can read online descriptions of archives in Russia and East-Central Europe, and even peruse detailed online finding aids. And they can order copies of hard-to-obtain materials through online document-delivery services.

That said, I have serious reservations about the growing popularity of the Web in education and research, especially in the humanities. I'm not the only one. Longtime techie Clifford Stoll has written books and articles vigorously attacking the use of computers and the Internet in education; his most recent jeremiad, High-Tech Heretic, appeared in 1999. In 1997, Todd Oppenheimer published an article entitled "The

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<sup>1</sup>I designed and manage two fee-based services at the University of Illinois Library at Urbana-Champaign: the online version of the American Bibliography of Slavic and East European Studies (ABSEES); and the IRIS suite of funding and research services. In 2000, ABSEES and IRIS served over 250 subscribing colleges, universities, and libraries in North America and Europe and generated over \$250,000 in subscription revenue and royalties. Available: <http://www.library.uiuc.edu/absees/>; and <http://www.library.uiuc.edu/iris/>.

Computer Delusion" in The Atlantic Monthly.<sup>2</sup> The delusion Oppenheimer took aim at is the idea that filling schools with computers helps kids master basic learning skills like reading, reckoning, and reasoning. As a demolition job, his article is tough to beat. There are other Web-skeptics out there, including Sherry Turkle of MIT's Program in Science, Technology, and Society, and, in our own profession, Marilyn Gell Mason, formerly director of the Cleveland Public Library, now special advisor to the president at OCLC.

Let's start with some basic problems that crop up in our day-to-day work as Slavic librarians. It is true that the Web has facilitated communication among people in our field and improved access to traditional and new kinds of research materials. At the same time, it has led to the proliferation of expensive electronic resources and the crowding-out of more-traditional tools. Some of the new resources are very good and represent a substantial improvement over their print or microform counterparts. Others do not. Either way, evaluating electronic resources—comparing them with the traditional products they purport to replace and figuring out the intricacies of the licensing agreement—takes time.<sup>3</sup> There is also the problem of archiving and back issues. When a library buys a book or a serial, it acquires a tangible product that can be used even after the library's subscription has expired. Online resources, by contrast, are ephemeral. They are there only as long as one pays for them; and in most cases the library that cancels its subscription cannot access back issues it has already paid for.

In short, electronic resources put an additional burden on the already inadequate budgets of libraries in general and Slavic libraries in particular. They can siphon money away from less advanced but more stable—and in some cases more useful—materials. Resisting the allure of digital resources can be difficult, especially if faculty members or other library departments are lobbying for their acquisition. Brad Schaffner reminds us quite rightly that "librarians must avoid the danger of prioritizing the acquisition of electronic resources over the acquisition of equally important publications which are not digitalized."<sup>4</sup> Unfortunately, this is easier said than done.

Electronic resources also place an additional instructional burden on librarians. Reading a book or journal is an intuitive activity. Finding and navigating a Web site, or downloading and installing a new font, or searching an online database, are not. Instead of making things easier for patrons, the new technology has presented them with a new set of challenges. The Slavic Reference Service at the Slavic and East European Library at the University of Illinois at Urbana-Champaign typically handles around 3,000 reference questions a year. According to its manager, Helen Sullivan, the service now spends up to fifty percent of its time helping patrons with computer-related problems.<sup>5</sup>

Finally, the growing popularity of electronic resources and the Web contains a more subtle danger: the possibility that the availability or non-availability of research materials in electronic form will determine the research agendas of students and future scholars in the field. In other words, there is a danger that the medium will drive the scholarship. Several professors I have spoken with have dismissed this danger, saying that they don't see signs of this in the work of their graduate students—yet. However, there are indications that this is happening at a lower level. Schaffner has written that "on several occasions,

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<sup>2</sup>Todd Oppenheimer, "The Computer Delusion," The Atlantic Monthly, Vol. 280, no. 1 (July 1997): 45-62.

<sup>3</sup>For the factors that go into evaluating an electronic reference resource, see Mark D. Steinberg and Helen F. Sullivan's review of K.G. Saur's Complete Archival Guide to the Russian State Archive of Literature and Art on CD-ROM in the Slavic Review, Vol. 56, no. 2 (Summer 1997): 350-352.

<sup>4</sup>Bradley L. Schaffner, "The Effects of the Digital Revolution on Libraries and Research," AAASS NewsNet, Vol. 38, no. 3 (May 1998): 1-3.

<sup>5</sup>Helen Sullivan, personal communication, November 15, 1999. The Slavic Reference Service can be found at <http://www.library.uiuc.edu/spx/srs.htm>.

students have requested assistance in changing the focus of their research to a topic that could be searched using only electronic sources.”<sup>6</sup>

These are just some of the real-life problems associated with electronic resources and the use of the Web as a research tool. There are others. In this talk, however, I'd like to concentrate on a more elusive—and, I believe, a potentially more dangerous—problem. The problem I'm referring to is the effect of the Web and electronic resources in general on the complex cognitive processes that we call “thinking”.

Let me begin with a statement that sums up the problem. In a recent review of a CD-ROM entitled *Culture 4.0* (“The Contextual Guide and Internet Index to Western Civilization, Covering Various and Sundry Things Every High School Student Should Learn and College Student and Graduate Should Know”), New York Times technology columnist Peter H. Lewis wrote that “The computer makes learning an active process rather than a passive one.”<sup>7</sup>

Does it really? I think that Lewis is confusing the brain—where real learning takes place—with the mouse-finger. Just because an electronic resource has clickable links doesn't necessarily mean that it promotes useful or original thinking. Based on my own experience as a researcher and writer, I would argue exactly the opposite: that computers make learning a passive process rather than an active one, at least in the humanities.

At first glance, this argument may seem counterintuitive. After all, isn't making connections what the Web is all about? Isn't the ability to link to cool stuff at the click of a mouse one of the Web's greatest virtues?

It is and it isn't. It all depends on the job at hand. The linking properties of the Web may be very useful for certain tasks; for other kinds of intellectual work they may be unhelpful or even harmful. Here it is useful to remember the all-important distinction between “information” and “recorded knowledge”. In the words of Michael Gorman, “information consists of facts, data, images, and short discrete texts that can be used alone,” while “recorded knowledge is complex, sequential, and discursive”.<sup>8</sup> Entries in reference works are examples of information; so are perishable or transient data (e.g. news reports). Scholarly and literary works—works of history, philosophy, or literature—are examples of recorded knowledge. While Gorman concedes the Web's usefulness as a tool for disseminating information (especially bibliographic information), he affirms paper's superiority as a medium for the preservation and transmission of recorded knowledge.

I think Gorman is right. Finding information and distilling that information into knowledge and, eventually, scholarship are two very different things. Despite the well-known shortcomings of online databases and Web search engines, finding information is not all that hard, and it's getting easier all the time. Turning information into knowledge, on the other hand, is as difficult as it ever was, perhaps even more difficult. It requires creative thinking, time for reflection, and the ability to synthesize disparate pieces of information into a coherent whole. In short, it requires prolonged mental effort, sometimes extending over months or even years. The Web is an excellent tool for providing access to bibliographic and other information. It is less well suited—indeed, it may not be suited at all—for the production and transmission of recorded knowledge.

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<sup>6</sup>Bradley Schaffner, “Electronic Resources: A Wolf in Sheep's Clothing?,” College & Research Libraries, May 2001 (forthcoming).

<sup>7</sup>Peter H. Lewis, “Classic Beauty, Cubed,” New York Times, August 31, 2000: G1. Available: <http://www.nytimes.com/library/tech/00/08/circuits/articles/31pete.html>.

<sup>8</sup>Michael Gorman, “Concentric Circles: The Future of Society, Learning, Libraries and Cataloguing,” paper given at the 100th anniversary of the dedication of Altgeld Hall, University of Illinois at Urbana-Champaign, June 1997.

One of the most frequently-voiced criticisms of the Web as a tool for teaching and research is that it lacks context and narrative continuity. It presents information a screen at a time, with little or no connection to what came before or what will come after. Thanks to the Web's formlessness and the user's ability to jump from one link to another at will, the very concepts of "before" and "after" lose their meaning. When Peter Lewis writes that Culture 4.0 "has more than 25,000 links to related sources of information on the Web" and that "most of those links have links, creating an outward spiral of information as elegant as the Nautilus shell," he is assuming order where none necessarily exists. Let's leave aside the question of how many of those 25,000 links may be dead, poorly maintained, or tendentious. The fact is that our excursions in cyberspace more closely resemble the meanderings of befuddled insects than an orderly progression through the chambers of Knowledge.

Of course, people have been known to flip through books too, skipping chapters and dipping at random into the footnotes and the index. How is that different from surfing the Web? I believe that the Web makes it much easier not to follow an argument to its conclusion. It encourages discontinuity and shortens the attention span. In addition to being uncomfortable, reading on the Web is similar to channel-surfing on TV: isolated blips of information and images (some of them animated) supplant narrative. By contrast, the book is a discrete, self-contained object. It is sequential, and each chapter builds on previous chapters. Its organization and layout embody the ideas it contains. An English professor at UCLA recently wrote that "[i]nformation, like humanity, cannot exist apart from the embodiment that brings it into being as a material entity in the world...As we rush to explore the new vistas that cyberspace has made available for colonization, let us remember the fragility of a material world that cannot be replaced."<sup>9</sup>

I am not a cognitive scientist, a neurophysiologist, or a professional student of how human beings learn. Nonetheless, I believe that tangible, linear artifacts—e.g. books—have distinct cognitive advantages over the Web, especially when it comes to the production and transmission of knowledge. Precisely because they lack hyperlinks and other interactive embellishments, books and other printed materials compel the reader to use his or her intellect to arrive at the kind of original insights on which enduring scholarship is based. The very austerity of printed text provides a space in which the imagination can play. In my view, there is a real danger that Web sites and other electronic resources, by presenting the researcher with a set of pre-selected interactive links, will preempt this mental activity and lead to an atrophying of the scholarly imagination.

By "atrophying of the scholarly imagination" I mean a gradual erosion of the ability to see the kinds of correspondences and attain the kinds of insights that lead to fresh, enduring, and intellectually exciting work. This may sound like a stretch. If it is, I'm in pretty good company. In his 1995 book Being Digital, MIT multimedia guru Nicholas Negroponte wrote that "Interactive multimedia leaves very little to the imagination ... By contrast, the written word sparks images and evokes metaphors that get much of their meaning from the reader's imagination and experiences. When you read a novel, much of the color, sound, and motion come from you."<sup>10</sup> The same thing goes for scholarly works. The imagination is like a muscle. If it isn't used, it atrophies. By reducing the demands on the imagination, the Web promotes the atrophying process.

The Web also represents a seven-league stride in the past century's long march away from the tangible towards the abstract in practically all areas of life—from warfare, to work (telecommuting), to business (e-commerce), to education (distance learning and "e-office hours"), to leisure (computer games and "virtual reality"), and even to our most intimate personal relationships. In my view, the shift from the tangible to the abstract is one of the most important developments of our age. Its social and cognitive implications are far from clear. Even so, I think we know enough to say that the growing incursion of the abstract into our personal and professional lives is not entirely good or desirable.

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<sup>9</sup>N. Katherine Hayles, cited in The Chronicle of Higher Education, March 12, 1999: B9.

<sup>10</sup>Nicholas Negroponte, Being Digital (New York: Knopf, 1995): 165. Cited in Marilyn Gell Mason, "The Yin and Yang of Knowing," Daedalus, Vol. 125, no. 4 (Fall 1996): 167.

What does this shift have to do with education and research? Two things. First, I believe that most scholars and scientists would agree that there is a tactile and topographical dimension to research and writing. To take just one example: the scree of papers and mesas of books, some of them highlighted or marked with post-its, that cover my desk when I'm working on a research project. This apparently jumbled terrain contains visual and physical cues that help me to make sense of and organize the material at hand. Is it possible to reproduce this unkempt landscape of thought on a computer screen? Not yet, and maybe not ever.

Second, the physical world is the birthplace of ideas. Let me give a very modest example of what I'm talking about. Several years ago, I drove to Evansville, Indiana, at the beginning of the academic year to give a series of faculty workshops at the university there. I stayed overnight, and the university put me up in a house across the street from the campus. The home used to belong to a local family, but had been acquired by the university and turned into a guest house for visitors. I arrived early on a very hot day—this was late August—and found myself with a couple of hours to kill before the first workshop. It was too hot to take a walk, so I spent the time exploring the house. Interestingly, the family's library had been left intact, perhaps in the hope that guests might actually dip into it for bedtime reading, or—more likely—in the belief that “books do furnish a room”. Whatever the motive, the library opened a window onto the tastes, interests, political opinions, and aspirations of an upper-middle-class German-American family in a small midwestern city in the first half of the twentieth century—say, from the 1920s through the late 1940s and early 1950s. I had turned to the bookshelves out of idle boredom, but soon became engrossed in what I found there. If I had been a social historian specializing in modern American history, this experience might have germinated into an article or even a book. Instead, that afternoon in Evansville and its serendipitous discoveries have stayed with me as an example of how important sensory cues and physical setting are for understanding other people and other time periods. In other words, how important they are for sparking the empathetic imagination—which is, perhaps, the historian's most important asset. Could I have achieved the same insights on the Web? I doubt it.

A belief in the importance of physical experience in intellectual work is not limited to humanists. Sherry Turkle of MIT has written that “physicists in the anticomputer camp speak reverently of the power of direct, physical experiences in their own introductions to science, of ‘learning Newton's laws by playing baseball.’”<sup>11</sup> The Web is perhaps the best example we have of a disembodied information technology. As such, it threatens to undermine the physical dimension of learning and research in the humanities and the hard sciences alike.

To summarize: I have argued that the Web is bad for scholarship because:

- It confuses the distinction between information and knowledge.
- It lacks context and narrative continuity.
- It preempts the scholarly imagination.
- It undermines the physical dimension of learning and research.

It may well be that I am overstating the case. I can't point to scientific evidence supporting any of these assertions. (There are, however, empirical studies that cast doubt on the effectiveness of the Web as a teaching tool.<sup>12</sup>) Nor can I point to a specific example of bad research in our field that could be traced directly to use of the Web. As far as I can tell, the Web has not resulted in a spate of lousy books in Slavic Studies. In other words, there's no smoking gun.

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<sup>11</sup>Sherry Turkle, “Seeing Through Computers: Education in a Culture of Simulation,” The American Prospect, No. 31 (March-April 1997): 76.

<sup>12</sup>See, for example, Noriko Hara and Rob Kling, “Students' Distress with a Web-based Distance Education Course,” Center for Social Informatics (CSI) Working Paper 00-01-B1 (March 30, 2000). Available: <http://www.slis.indiana.edu/CSI/wp00-01.html>.

There's also a lack of agreement on this question among professors and teachers. Some educators argue that the Web has already led to a decline in the quality of students' written work. "How the Web Destroys the Quality of Students' Research Papers", the title of an article that appeared in The Chronicle of Higher Education several years ago, neatly summarizes this point of view. The author of that piece, a professor of philosophy, wrote that "the placelessness of the Web leads to an ethereal randomness of thought. Gone are the pathways of logic and passion, the sense of the progress of an argument." The result? "I'm seeing my students' attention spans wane and their ability to reason for themselves decline."<sup>13</sup> Other professors disagreed, however, saying that the quality of student work is about the same as it always has been and that educators ought to examine their own teaching style before blaming the Web for poor student performance.<sup>14</sup>

It's important to remember that this is still early days. The World-Wide Web has been around for a little over eleven years; its graphical manifestation has been around for just over half that time. Whatever influence the Web may have on reading, thinking, and scholarship, the results are unlikely to be apparent for some time, perhaps not for an academic generation or two.

### Conclusion

In his 1995 book The Gutenberg Elegies: The Fate of Reading in an Electronic Age, literary critic Sven Birkerts wrote that "it may be time to ask how modifications in our way of reading may impinge upon our mental life."<sup>15</sup> That is what I have tried to do here, in a brief and rather impressionistic way. It may be that my fears are groundless and that traditional paper-based scholarship in the humanities—or at least its habits of thought—will survive the Web. I hope so.

One thing is clear: the Web is here to stay. We can expect that its use in education and research will increase, regardless of whether we think this is a good thing.

So: what to do? The starting point is moderation, balance, and common sense. The Web makes information on all kinds of subjects easier to find. It does not make it easier to turn that information into knowledge. The danger is that we assume that it does. The Web is not to blame for this; it is, after all, just a tool—a very powerful tool, but a tool nonetheless. The blame rests with us for ascribing to the Web properties which it does not possess.

As librarians, we can manage the Web by:

- Trying to achieve a good balance in our own collections between traditional print resources and Web-based services.
- Preserving (whenever possible) the original hard copies of rare, unique, or hard-to-replace research materials. If you detect in this suggestion the influence of Nicholson Baker's articles on the destruction of card catalogs and newspapers and journals, you're right.
- Applying the same rigorous evaluation criteria to Web sites that we do to printed or microfilmed works, paying particular attention to richness and quality of content, stability, and frequency of updating.
- Creating high-quality online resources of our own, especially online bibliographies and guides to literature.

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<sup>13</sup>David Rothenberg, "How the Web Destroys the Quality of Students' Research Papers," The Chronicle of Higher Education, August 15, 1997: A44.

<sup>14</sup>Letters to the Editor, The Chronicle of Higher Education, October 10, 1997: B3.

<sup>15</sup>Sven Birkerts, The Gutenberg Elegies: The Fate of Reading in an Electronic Age (New York: Fawcett Columbine, 1995): 72.

Librarians have been dealing successfully with new information technologies since the profession's origins. The Web is the most powerful information technology we have had to deal with so far, but I am confident that we can turn it to our and our patrons' advantage—as long as we remain aware of its potential downside.

Thank you.