

How to Read Hypertext: Media Literacy and Open Access in Higher Education
From *Making the University Matter*

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The neoliberal idea of knowledge assumes a product that professors allocate to students in somewhat digital units. In this essay I contest that notion strongly, showing its shortcomings in practice, and argue for a more analogic approach to be used as a counter, one familiar to all, that higher education is about fostering critical thinking. Instead of teaching just things, we need to teach ways (note the plural) of engaging the world in complex, meaningful, and useful terms.

One such way of thinking is via media and mediation, and oftentimes students come to the university savvier than some of their teachers. This situation has led to strong pockets of resistance to some facets of new media that have blocked a difficult but necessary solution to the interlinked set of problems facing both authors and presses in academic publishing today. As historians of slavery have long known, such resistance need not be the majority position nor even a strong minority in order to be effective.

If the university is to continue to matter in the twenty-first century, professors, students and administrators alike will need a particular form of media literacy. Let me begin with a simple but seldom discussed example, literacy in hypermedia. Little gets said about reading hypertext beyond its metaphorical relationship with surfing and that it is somehow “user-directed.” Most of the literature concerns its production, often with an emphasis on “keeping” the reader, preventing her or dissuading him from leaving a particular text for another. The most successful web sites, rather than tricking readers to stay, encourage them to go away (and as a result, come back) often. The writerly philosophy of possessing the readers and reining them in is ineffective at best, but still somewhat harmless at worst, as myriad well-designed sites that are blithely skipped through attest.

Once the open system of massively linked hypertext that is the web reached a critical mass of usefulness the possible paths through it began to approach infinity. No one could possibly predict or account for all the possible routes through the web: it has become, in Ted Nelson's word, intertwined. What the "go away often" sites realize is that hypertextual reading is in the mind of the reader rather than on the web page, and the readers, not the writers of hypertext decide the route through it. The primary way readers take control of the hypertext on the web is via indexical searching with key word in context (KWIC) results on sites epitomized by Google. Indexical searching has moved the locus of the link from the page to the mind. Now if I am reading a web page and have an associated thought, I do not have to rely on an author already having planned for that connection by providing me with a link. Browsers have incorporated this in search bars that make the process of following through on a new association as seamless as possible given the above-mentioned time and search issues. Hypertext authoring has focused on somehow thinking of all the possible connections beforehand, or somehow controlling "paths" through the hypertext, but as those who have had an idea that a web page has not foreseen know, this is impossible and unnecessary.

Of course search engines catalog words, and increasingly, phrases rather than ideas, but there is enough correspondence between the two to make this sort of searching infinitely more productive than wading through paths someone has already thought of. Just ask Yahoo!, whose tree-like browsing model of searching by category and subcategory yielded to the freeform likes of Google. The tree, as we will see, is not the problem, just its location.

New readers of hypertext often complain of disorientation, and this is usually attributed to poor design.¹ It is rather a problem of readerly expectations and attempting

1 Jeff Conklin, "Hypertext: An Introduction and Survey," *Computer* 20, no. 9 (1987): 17-41.

to approach a massively linked, non-linear, multiple authored system as a linear text. The skill set needed is by the reader, not the writer. With the coming of age of "digital natives," people who have grown up using computers and the Internet, the problem has faded a bit. The issue at stake remains, however. College professors teaching computer science as well as composition, whether in a dedicated class or as an integral part to a course, focus almost exclusively on production and writing. Everyone is assumed to know how to read, and seldom is any critical engagement with specific requirements of hyperliteracy brought to bear. But even when digital natives read hypermedia, they may do so without a particular strategy for learning and thinking critically. This is where hyperliteracy becomes an important skill, one closely related to the main thing a liberal arts education is supposed to teach, critical thinking.

Chunking

So how does one read hypertext usefully, critically? The first step is to partially move the reader's agency in hypertext away from the text itself and to the realm of ideas and concepts. Here the cognitive scientist's notion of "chunking" becomes useful.² The idea behind chunking is that humans can remember somewhere between four and seven items in short-term memory at a time. The strategy for more complex learning is to combine smaller chunks into larger chunks of related information. One example is a

2 Fernand Gobet et al., "Chunking Mechanisms in Human Learning," *Trends in Cognitive Sciences* 5, no. 6 (2001): 236-243; George A. Miller, "The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information.," *Psychological Review* 63, no. 2 (1956): 81-97; Herbert A. Simon, "How Big Is a Chunk?," *Science* 183, no. 4124, New Series (1974): 482-488; Nelson Cowan, "The Magical Number 4 in Short-Term Memory: A Reconsideration of Mental Storage Capacity," *Behavioral and Brain Sciences* 24, no. 1 (2001): 87-114.

word, a chunk made up of letters or phonemes (themselves chunks of image or sound) to which we pay no attention. A particular group of words, perhaps a phrase, sentence, or paragraph, can then be brought together as a chunk. Several of these larger chunks can be brought together to form a concept. In a printed text, the ideas are already supposed to be chunked for us: Sentences in paragraphs in sections in chapters, all mapped out in a table of contents, inventoried in an index, and duly filled with citations along the way.

In a hypertext, the reader does the higher level chunking. So rather than just surfing anywhere in a linear fashion (the source of disorientation), the reader needs to engage in a back and forth with the text, a conversation of sorts. A page is read and a link clicked. The next page is read, then the reader can go back and scan to see if there are other interesting links on the first page. If so the process is repeated until the original page and its associated links come together as a chunk of information. If something of interest is brought up but not linked, the reader can execute a search to find out about that, in effect creating a link. The pages linked to might have their own implicit or explicit links, and those could be followed in the same fashion to create a sub-chunk of the chunk from above. Reading strategy could go depth first, breadth first, or a combination of the two, but always with the idea of the back and forth to create the chunks, thereby forestalling the disorientation of “surfing.”

The whole would eventually look like a branching tree or a genealogy if mapped out. As Michel Foucault long ago noted, genealogies are strategies of power and privileging.³ By creating a family tree of ideas in print, some get privileged while others get ignored, and only a few, the “authors,” get to determine the tree. The same is true of hypermedia, but the tree is constructed by and in the mind of the reader, regardless of the authors’ practices or intents. A critical hyperliteracy thus requires the reader to be able to

3 Michel Foucault, “Nietzsche, Genealogy, History” in *The Foucault Reader*, ed. Paul Rabinow (New York: Pantheon, 1984), 76-100.

build up chunks of ideas into larger concepts and break down general concepts into component chunks, learn to see the tree among the branches and the forest among the trees, and be aware as a hypertext reader that the result of the inquiry is as much the reader's construction as any of the authors'.

Initially, this branching model seems to fit what Deleuze and Guattari call "arborescent" strategies. As an alternative, they call for strategies that are rhizomatic, doing away with the hierarchy of one-to-many nodes and branches and creating many-to-many relations with multiple pathways and points of entry.⁴ Yet still, one chooses only one path at a time, which implies that even if an author -- or in the case of complex hypertextual spaces like the web, many authors -- produces a rhizomatic text, the reader has to proceed serially. One idea held in cognitive scientific work is that the elements (which are themselves chunks) constituting a chunk comprise a group that is strongly related within the chunk *and weakly related to elements or chunks outside it* (Gobet et al 2001).⁵ Removing that second constraint means the map needs more than two dimensions, as chunks can then have multiple homes, a strategy of using family resemblances or fuzzy sets (Rosch and Mervis 1975).⁶ This seems to me to respond to the gist of Deleuze and Guattari's, as well as Foucault's, critiques of the arbor or genealogy, yet without losing the cognitive advantages chunking provides as an empowered strategy for critical hyper-reading.

4 Gilles Deleuze and Felix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia* (London and New York: Continuum, 2004), 3-28.

5 Gobet et al., "Chunking Mechanisms in Human Learning."

6 Eleanor Rosch and Carolyn B. Mervis, "Family Resemblances: Studies in the Internal Structure of Categories," *Cognitive Psychology* 7, no. 4 (1975): 573-605.

In the world outside the academy, media literacy, particularly hypermedia literacy, is growing in importance, and the ability to operate critically in a hypermedia environment is critical to many professions. However, part of the professorate is in the compromised position of being not necessarily competent. Often, defensiveness and opposition results from the realization of this lack. An unfortunately non-fictional example would be a professor who bewails the loss of paper journals as the real thing because he neither trusts nor knows how to find articles online. Such resistance has created a bottleneck that not only does a disservice to students, but also exacerbates the current crises in publishing and tenure.

Open Access and the Crisis in Publishing

A crisis in academic publishing is upon us. University presses are in hard times. Attempts to market to broader audiences than covered by the traditional monograph in an effort to boost sales have largely failed, but the former status quo is gone for good it seems. Journals are seeing funding dry up as print runs become more expensive and online editions take over. The publishing houses behind the journals do themselves no favors by pricing access to articles and other texts at outrageous levels. As a result, scholars are feeling the squeeze on two fronts. On the one hand, opportunities for publishing are shrinking, and on the other, the resources for undertaking research are becoming increasingly stratified, making authors from the schools outside the Ivies less able to compete.

While the crisis of university presses and cloth, glue, paper, and ink publications is real enough, the crisis in publishing is artificial, the effect of the seldom-discussed conservative, innovation-crushing tendencies of capitalism and the professorial resistance already mentioned. The core of legitimacy for academic publications resides not with the presses that publish journals and books, but with the voluntary and unremunerated

process of peer review. However, to many academics, the legitimacy has become enshrined in the printed object rather than in the process, a widespread form of what used to be called fetishism if non-western people (or subjects of a particular type of Marxist analysis) had done it rather than professors.

The inertia inherent to capitalism manifests itself in the fact that print publishers have an enormous capital and human investment in maintaining things as they are even when they can no longer be. This trend has turned up throughout print media enterprises. Compact discs, which could hold entire textbooks and huge datasets and can be reproduced for less than a dollar per copy were considered a threat by publishers and not taken up until rendered virtually useless as much more than coasters, often remaining largely empty even as textbook prices continue to skyrocket. Newspapers are another example. They were slow to embrace the web, and when they did they often chose scaled down, crippled, and inordinately expensive implementations at first. The highly touted, award-winning Project Gutenberg-e was riddled with problems from the outset, not least of which was an odd sort of forward-looking conservatism posed as a big change. The project director admitted that it stayed afloat only from external funding, and blames the failure on lack of demand. As originally envisioned, it did fail due to a lack of demand, a lack fueled by the semi-purposeful crippling of the books to meet the perceived needs of a publishing industry invested in financial returns. The result was over-investment in a very pretty but hardly functional closed-access product that it was hoped would generate revenue. Gutenberg-e authors had difficulties getting personnel committees to accept their work, and the titles were eventually offered in traditional hardcover form. As of November, 2007, the project went open access (Howard 2008), finally giving the authors the exposure they deserved and making available a wider range of the benefits of an

electronic format, such as full text search via an external (rather than their severely flawed internal) search engine.⁷

The core of legitimacy for an academic publication is the process of peer review that books and journal articles routinely undergo *before* appearing in print. This is undertaken by academics as a service, for free, in order to maintain the standards of a discipline or field. Yet the results of this service are rendered inaccessible without a password that costs schools many thousands of dollars per year to provide or are available only for purchase as a book even though the full text is already in electronic form. In fact the full text of most currently in-print books is already online, either at Google Books or from Amazon's search inside feature, but access to such texts is artificially curtailed to "snippets." This is supposedly for the benefit of authors, who otherwise would supposedly have no economic incentive to write. But as the vast majority of us who publish as part of our academic lives know, most authors see little if any direct financial return for their work. The reward comes in the form of tenure and promotion, and the unpaid satisfaction of becoming a part of a great conversation by having made a contribution to the world of scholarship.

There is a growing movement to reopen scholarship as a public good. A few authors are established enough and so inclined to demand control over their copyrights that they can offer open access -- perhaps through creative commons licensing if they choose -- and a digital commons movement has generated a fair amount of open scholarship. A handful of online-only, open access journals have taken hold. The

7 Jennifer Howard, "Landmark Digital History Monograph Project Goes Open Access," *Chronicle of Higher Education*, February 26, 2008 , <http://chronicle.com/article/Landmark-Digital-History-Mo/541/>.

International Journal of Communication is run from open access software. It has managed to achieve a smart look to go along with excellent content on a fraction of the budget of a paper journal. In my own field of early American history, the online journal *Common-Place* has thrived, and articles from it are often cited. Scientific papers routinely enter the community of scientists through the process of pre-publication, where new findings can be shared, and as importantly, critiqued, before being committed to final publication on paper and online. What was originally intended as a stopgap during the interim until scientific journals came online became by default the basis for an open access online archive . The humanities, though behind the sciences on this measure, have taken up open access too. In an encouraging move, Harvard’s Faculty of Arts and Sciences voted in 2008 to provide online open access to its scholarly articles by default.⁸

Many in both the humanities and the sciences see open access for scholarship, particularly if it is funded by governments, as an ethical issue. Information made possible by the people should be accessible to them. In fact, forty- one Nobel Laureates recently signed an open letter to the U.S. Congress in support of open access legislation (Alliance for Taxpayer Access 2009).⁹ Universities are not businesses, and for precisely this reason, they can lead in providing public good that a business model would foreclose.

8 Peter Suber, “Open Access Overview,” ; Peter Schmidt, “New Journals, Free Online, Let Scholars Speak Out,” *Chronicle of Higher Education*, February 14, 2010, ; Paul Ginsparg, “Can Peer Review be Better Focused?” ; Open Humanities Press, ; Lila Guterman, “Celebrations and Tough Questions Follow Harvard’s Move to Open Access,” *Chronicle of Higher Education*, February 29, 2008, . Ironically, in light of the subject of this chapter, this and one other Chronicle article cited here are accessible by subscription only.

Such moves garner strong protest from the business-oriented sectors of the academy. The Association of American University Presses (AAUP) has opposed the open access movement in the most vehement terms, arguing that it amounts to “government interference with the scholarly communication process” that puts peer review and the whole scholarly enterprise at risk while inviting government censorship, as if the presses rather than the referees shoulder the responsibility for peer review (Howard 2007). The website for their public relations wing, the lobbying group Partnership for Research Integrity in Science and Medicine, was such an aggressive disaster it appears to have quietly shut down in the aftermath of the ruckus their campaign caused. Several AAUP board members from university presses resigned in opposition to the AAUP’s stance, and ten university presses came out against it in June 2009.¹⁰

Where then, does the economy of scarcity for publication reside if it is in the interest of authors and peer reviewers alike to see their work disseminated as widely as possible? Besides the print publishing industry, one of the places that economy arises from is the same place as resistance to implementing media literacy requirements: from faculty. Let me illustrate the last point from another unfortunately non-fictional professors’ experiences. A friend of mine, junior faculty at a research institution, reported

9 Alliance for Taxpayer Access, “An Open Letter to the U.S. Congress Signed by 41 Nobel Prize Winners,” .

10 Jennifer Howard, “Publishers' PR Tactic Angers University Presses and Open-Access Advocates,” *Chronicle of Higher Education*, September 21, 2007, .

that he had been upbraided in a review by his department's personnel committee for "not doing anything" since arriving. The professor in question had in fact been funded to work on producing a massive web resource that will be constructively used by teachers and researchers alike for years to come, bringing both money and prestige to the department. The work was not considered scholarly activity because it had not resulted in print journal articles or a book contract. Here were people with everything in hand to resolve this little corner of the publishing crisis but instead remained entrenched in print media as their standard rather than peer review. They worship the fetish while the very process that empowers it is in their own hands.

The solution to the publishing crisis can come from above or below, but there is no doubt that it will eventually come. Two possible scenarios exist. Either administrators and faculty will lead the way or it will bubble up out of sheer necessity from below. The top-down model is feasible for a number of reasons. The better-endowed schools have the disinterest – what used to be called virtue in classical commonwealth theory – to lead the way. University administrations could forge the path, affecting the problem at the source of production. Many of the university presses reside at these schools, and the schools themselves would have the resources to reallocate to change from a profit-driven (or at least, a financial return-driven) enterprise to one more concerned with the dissemination of scholarship in whatever forms prove most effective. The shift would involve the loss of funding for print enterprises, but not necessarily for editorial and layout jobs at the university. The Andrew W. Mellon Foundation has taken steps support the shift away from paper by providing funding for four university presses to collaboratively develop e-books .¹¹

11 Jennifer Howard, "University Presses Can Hang Together to Make E-Books, or All Hang Separately," *Chronicle of Higher Education*, July 20, 2009, <http://chronicle.com/article/University-Presses-Can-Hang/47093/>.

Faculty can and will play a key role, at least in part because they control the peer review process independently of any publishing scheme. Recognition of this power could lead to changes in retention, tenure, and promotion guidelines to tend to the process they control rather than the object they don't. Some of these same factors mitigate the possibilities for administrators charting the course however. Having the resources to draw and then support the most productive faculty, the top universities are the ones feeling the heat of the publishing crisis the least. Their books are the ones still being published, and though they are affected, they are less so than faculty at less resourced colleges and universities. That makes the Harvard Arts and Sciences faculty's open access decision doubly encouraging. Professors at more modestly endowed institutions, often trained in the top tier, struggle for research support in the form of release time and resources and often take longer to get work done. They are more often the ones at the margins of the print publication process, submitting to multiple presses before finding one even willing to send a work out for peer review much less grant a contract and produce a book. The subventions that some presses are requiring for publication are harder to get because funding is scarcer. It is at these schools that divorcing peer review from fetish object would do the most good. But they are not as confident in changing standards as the top tier lest they be perceived as slipping behind rather than leading. There the solution will come when these universities are unable to staff their faculties with a rising generation in order to meet the exigencies of teaching and scholarship at the heart of all universities. Already this problem is being forestalled by increasing the number of overworked and underpaid adjunct and part-time faculty, but in the long term that is not sustainable. Obviously, a university that relies on the research productivity of its faculty to sustain its place among other universities is *really* slipping in this latter case.

The crisis in the print industry positions university administrators and faculty uniquely to lead the way into the future in ways remunerative enterprise, for all its virtues, cannot. The question of funding is by no means moot, but universities have access to resources businesses do not. Once the unworkable aspects of the oxymoronic concept of closed access digital publishing are discarded along with the business models that drive them, the costs will go down. New scholarship of any type is already digitized, and extending it to the Internet borders on trivial and is only growing easier. Costs at this point are largely a matter of unnecessary bells and whistles, which can be discarded along with the marketing budget, leaving hypertext scholarship to compete for the ever-vigilant hypertext readers of the rising generation (and their parents) to judge what they find on its merits rather than its production values.

To conclude, reading hypertext effectively is neither difficult nor intuitive, so chunking and other critical media skills need to be taught as a part of hypermedia literacy. Competence in such literacy, while growing increasingly necessary in the world outside the academy as well as within, cannot be uniformly assumed to be held by the existing professorate, leading to pockets of heel-dragging and opposition to instituting the practice as a core curricular requirement. The opposition to hyperliteracy, whether tacit or explicit, has abetted the crisis in print publication. Although the crisis for print media is real, university administrators and faculty have it within their grasp to de-fetishize the physical objects of publication and reallocate values and resources so that the results of the processes of sound scholarship and peer review are recognized as the metric for retention, tenure, and promotion rather than the printed object. One promising venue for this to occur is the open access scholarship movement. Although a consortium of print and for-fee publishing interests have banded together to oppose open access, it is nonetheless gaining ground, and once something is made free it is difficult to put the genie back in the bottle. The possibilities of new media are difficult if not impossible to

close off artificially, as traditional print enterprises and attempts at closed digital publication across the spectrum are still finding out. While remunerative enterprise has actually hampered the progress of digital publishing thus far, it is not necessarily incompatible with open access, it just constitutionally forecloses the imagination needed to address the *current* problems of hypertext. The universities will need to lead the way, not the businesses, where the cold logic of capitalism leads down an unsustainable garden path.