

Scholarship: The Wave of the Future in the Digital Age¹

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I've been asked to write about pretty much anything I want to in the broad area of information technology (IT), the research university, and the university library. In brief, it seems to me that the most interesting and important questions center on the ways in which advances in IT change (and, equally important, don't change) what universities do and how they do it. To get to the punch line, I will argue that the defining characteristic of good universities—the production of careful scholarship in service of the creation of knowledge and understanding—is and ought to be unchanged by changes in IT. At the same time, new technologies have been disruptive and productive with regard to important aspects of the way in which scholarship is produced, made public, taught, and learned, and there is (and should be) more disruption yet to come. Thus, I take the position (as I have done before) that the response of the academy to changes in IT rightly includes both conservative and revolutionary elements—conservative in terms of mission and revolutionary in terms of how the mission is attained.²

The Importance of Scholarly Literacy

Research universities and liberal arts colleges have always spent a good deal of effort conveying the value of scholarly method to their students, including the great majority who will lead most of their lives outside the academy. Scholarly methods are valuable for practical work, in both the learned and less learned professions, and they are essential to the great pleasure that can be taken in understanding the world and oneself, in leading an examined life, and in being an effective member of society. Ubiquitous access to information poses a risk that the special character of scholarly work and understanding can often be skipped altogether, because it is now easy to obtain answers to questions that are “good enough,” via any number of tools that are immediately, freely, and conveniently available on the web. Equally important, the process of digging through sources,

grappling with ambiguity, getting confused, and finding a way out can often be avoided when one can easily find the “good enough.”

Partly in response to these concerns, there has been much talk about the importance of developing “information literacy.” I will argue here that our most important audience is already information literate and then some.³ Our interest should be in ensuring the production of something that we might call “scholarly literacy,” by which I mean the understanding of sources, methods, and their use that is at the heart of knowing what one knows and does not know. The problem is that the remarkable growth of information literacy has both enhanced our technical ability to produce scholarly literacy, by greatly increasing access to resources, while at the same time reducing the imperative to engage in sound scholarly practice, by making it so much easier to do work that is “good enough.” The challenge that we face will not and should not be that of turning back the clock; our task is to take ubiquitous information literacy and exploit it as an asset for the development of scholarly literacy. (There would be a high payoff, by the way, to generating a phrase that is jazzier and more marketable than “scholarly literacy.”)

Changes in IT—particularly the digitization of information—affect academic work of all kinds. It is important to remember that (like all technologies) IT is instrumental, rather than a goal in itself. The importance and value of IT arise from the ways it affects the use of information in the service of activities that we find to be valuable—solving partial differential equations, searching bibliographical data, enabling collaborative learning and teaching, making objects of scholarly interest available in many places at the same time, bringing music and images to consumers’ homes and laptops, and, of course, many more. In the current context, what is important is how IT affects how we learn (I include research within learning) and teach.

It seems to me that the radical changes in the practice of scholarship (and many other activities) that derive from IT take place principally via two mechanisms—networking and copying. It used to be expensive to get information from one place to another, and very expensive to do so quickly. It’s now cheap, indeed approximately costless at the margin, given the requisite hardware and fiber. It used to be expensive to make copies of text, images, and sound. It’s now cheap, also essentially costless at the margin. (None of these activities is as inexpensive as they look to the end user, and the question of how the relevant infrastructures are to be paid for is important. But the point here is that from the perspective of literally billions of people, copying and shipping information around is essentially costless.) What is not cheap, as Joseph Esposito and others have pointed out

repeatedly, is to figure out what is important and valuable in the stream of information that is now so easy to produce and make publicly available.⁴ Nor is it likely to become so. In a world where there is more information than anyone can process, the traditions and methods of scholarship (which, at their best, turn information into knowledge and sometimes even into wisdom) and academic libraries should be especially useful. And new IT can help to ameliorate the problem that it has created, in that many of the tools that have been developed can be used to focus the range of material to be searched.

Fundamentally, scholarship is about learning, describing, and explaining what one has learned and how one has learned it. From the most reductionist science to the most interpretive work in the humanities, to practice the scholar's trade it is essential that we be able to provide our readers (or viewers) with accurate and reliable guides to the sources of our knowledge and understanding. Weeks, months, years, or decades from the time that a scholarly work is made public, a user of that work must be able to follow the chain of interpretation employed by the original scholar. If we are to stand on the shoulders of giants, we need to know exactly whose shoulders they are and where they can be found. Thus, when I cite a paper by Paul Samuelson⁵ in my own work, a subsequent reader can reliably and accurately find Samuelson's paper, determine the accuracy of my citation, and dispute (or not) my interpretation. If things are working well, the dispute can be limited to interpretation, because we will have good bibliographic control over the sources themselves. The ability to replicate sources and methods (and thus to understand both insights and errors) across long periods of time is essential for the practice of scholarship. Without it we cannot know what our predecessors knew or thought that they knew, and hence we cannot make reliable use of their work. Put simply, it is essential that we be able to answer the question "what were they thinking," in order to make sense of what they said and did, whoever "they" may be.

In the good old days, when print was the only practical medium for communication of most scholarship, and when printing and distributing print was expensive, bibliographic control was relatively straightforward. An edition of a scholarly work (or pretty much any published work) could be well and compactly described with metadata that was natural for the publisher to produce and the librarian to collect. The second printing of the third edition of a particular book would be (almost) identical and (almost) identically described pretty much wherever it might be kept. Precision and reliability were even better for academic journals. (My colleagues who are in cataloging can go on forever, with some justice, about how it was never as good or as simple as I am making it out to be.

But I claim that for almost all scholarship, almost all of the time, the quality of bibliographic control was good enough and then some.)

The academic library, of course, has always been the keeper of the keys to this magical kingdom of reliable citation and provenance, greatly aided by the system of scholarly publishing and publishing more generally. It continues to fall to the academic library to ensure the reliable availability of scholarly works and other source material used by scholars, but this task is made much more difficult in a world where revision, copying, and making work public is trivially available to almost everyone, with no requirement for metadata or provenance and no presumption that a work with a title and URL that is available today will be available with the same title and location tomorrow, much less 40 or 100 years from now.

Scholarly work itself still comes with good metadata, and a great deal of effort has gone into ensuring that scholarly work, even when produced and distributed in digital form, can be reliably archived indefinitely. (This effort is not trivial, and it is to the credit of research libraries, scholarly publishers, and the good offices of the Andrew W. Mellon Foundation, among others, that we can reasonably expect that current and future scholarly work will be available on the terms that scholarship requires.)

But we face more serious problems, which can be well summarized by a symptom: it is much easier to search on the web, using Google or other search engines, than it is to do “proper” search and exploration of the scholarly literature on a subject. Thus, for many users, especially young people not schooled in the joys of serious bibliographic work, “good enough” threatens to replace “good.”⁶ There are at least three things going on here:

1. Internet-based search engines are powerful and easy to use, whereas the search tools available for the rich collections held and licensed by academic libraries are powerful only in the hands of users who are expert in both specific library resources and fairly arcane subject areas. The typical undergraduate—indeed, the typical academic working outside her own field—is likely to have much the better experience starting with Google than with federated search on library databases.⁷
2. An enormous amount of scholarly literature and other printed material is simply not findable through any electronic means, as it does not exist in digital form.
3. Even where the material is digitized and indexed, as in the case of works found in Google Book Search, material currently under copyright cannot be read online except as short snippets, and even this level of access is threatened by lawsuit.

The consequence is that scholarly method is simply not available on terms where it has any chance of competing with Internet search engines. It follows that we have a great deal to overcome if we are to ensure that our students develop scholarly literacy. Even in the best of cases, of course, good scholarly practice is far more demanding than practice that is not so good. Indeed, this was true in the days when everything was in print, and the difference was that between work that got an A and work that got a B, C, or even a D. The problem we face today is that if one is willing to settle for performance that is “good enough,” it is often possible to deliver at that level without engaging in scholarly practice at all. In other words, students may get good grades for research papers that are superficially persuasive but do not embody any serious scholarship. As a result, students may never learn the difference between excellence and mere adequacy in scholarship, as they may never have attended at all to the sources and methods that scholarship requires.

I want to reemphasize here that my interest in students’ learning of scholarly method does not derive from hope or expectation that more than a tiny fraction of them will become scholars. Rather, I believe that an appreciation of evidence, an ability to distinguish between persuasive and unpersuasive argument, an ability to seek and to find authoritative sources (skeptically, always skeptically), and a recognition that it is important to know “what they were thinking” will provide great benefit to our students and the societies that they comprise.

No one should be able to get away with argument by vigorous assertion backed by convenient sources. Experience of the value of scholarly method is the best defense we have against lies, laziness, and foolish ideas in essentially all domains of life where ideas and understanding matter. Further, there is no knowledge-based process in which looking things up, knowing what one has looked up, and understanding others’ reasoning are not essential. Law, medicine, engineering, construction, agriculture, cooking, and pretty much everything else require careful records of processes and methods both for ongoing activities and for reliable innovation.

What Must the Academy Do?

In all of this, IT should be our friend. IT can and should be of enormous help in bringing ideas, evidence, and a diversity of relevant expertise to the problem at hand, whatever that problem may be. Furthermore, IT should increase accessibility to and the process of tracking the ideas that underlie attempts to solve those problems. It is the job of the

education system at all levels to deliver on this promise. Doing so in higher education will require material changes within the university, in the system of scholarly publishing, and in the broader system of intellectual property and copyright. Within the academy we must do two things.

Require the Serious Practice of Scholarship

The first thing we must do is to insist that a substantial fraction of our undergraduate courses require the serious practice of scholarship. It is not sufficient to teach a course in the library on information literacy or scholarly literacy. It is probably not even useful to teach such a course if its emphasis is on teaching students to navigate the impossible maze of databases and search tools that come with the enormous power and complexity of digital resources in research libraries. [Trust me, after it is explained that one can look at only eight databases at a time in federated search,⁸ and that determining which eight are best depends on the problem at hand—and oh, by the way, there are half a dozen (or is it a dozen?) broad rubrics of search and there are a thousand or more electronic resources in total in the library—the student’s eyes glaze over. Indeed, the glazing starts fairly early in this process.] Rather, teaching the importance of scholarly method must be done within the context of specific learning—usually an assignment within a course—in which documenting reliable sources matters for understanding and for getting a good grade. Many faculty require such work, and many students get the benefit of doing it, but especially in big universities it is entirely possible for both faculty and students to succeed without this vital interaction. The academic library can be of enormous help here, in part by making it easy for faculty to require genuinely scholarly work via the mechanism of helping students to find good sources and cite them well and further by providing expertise both in the processes and mechanisms of good scholarship.

So far, all I have done is propose that we do what good liberal education has always done, recognizing that in the digital age it may take extra work on the part of the faculty (hence requiring extra help on the part of the library) to get the job done. That won’t be enough.

Exploit IT to Facilitate Scholarly Work

The second thing that should be done within the academy is to exploit the ability of IT to facilitate collaborative work, by using the techniques of social networking (Web 2.0) to allow students to teach

and learn from one other. Again, some of this goes on already, but in combination with the requirement of scholarly practice, it can be enormously valuable.

Within a few years, essentially all of the material in many academic libraries will be available in digital form. Once it is in that form (and relevant rights issues are resolved), we will be able to employ the tools of Web 2.0 in the library in support of scholarship and learning. Students can annotate and can “mashup” pretty much everything. The library becomes the bin for the mashups, with care taken to preserve both the original sources and the annotations along with the replicability and authenticity that are essential for scholarship and progress.⁹

Thus, we can use IT and the traditions of scholarship to create an environment where students get to use the academy’s methods and materials to teach. We all know that teaching is the best way to learn. We can now develop a library that has digital access to an enormous amount of material and the expertise on how to find it and use it across disciplines and generations. If we can persuade our students to use the academic library, we can employ the tools of IT to learn from them (and from each other) how it can be used in the context of much broader (and less controlled) vocabularies than were imagined by the original catalogers. This is all to the good, and has the promise of improving both academic work itself and the application of scholarly method outside the academy. Moreover, enlisting the considerable intelligence and energy of our students in teaching in these ways may improve both the efficiency and efficacy of undergraduate education itself.¹⁰

The Rights Environment: Work to Be Done

There is one missing piece, and that is a rights environment that permits sharing and use of published work—scholarly, artistic, and more—in digital form.¹¹ Under current law, it is perfectly OK for a student to go into the library and read a book that is still under copyright, but it is generally not legal for the student to access a digital copy of that book via the library’s web page, even in the vast majority of cases where the copyrighted book is long out of print and the publisher or author’s only way of finding a copy is to go to the library. Most out-of-print works, of course, have very little street value, but in aggregate they are enormously valuable, because they constitute (with the relatively few works that are in print) the scholarly and cultural record that is essential to the academy’s work of learning and teaching. These works must be available in digital and findable form. Unless the works can be

easily discovered by electronic means, they simply will not be found at all.¹² Thus, the utopian vision that I have laid out here requires the widespread availability of essentially the entire corpus of published work, on reasonable terms, in the academic library.

On this last point, I am optimistic. Authors and artists care deeply about their work having an impact, and old works that are not available digitally will have almost no chance of further impact. It is plausible, both via the “long tail” logic and through increased use in college courses and elsewhere, that a modest revenue stream from out-of-print works can be generated for those who hold copyright in such works. Colleges and universities and their libraries have spent billions of dollars over the years preserving these works and will (if necessary) be willing to pay somewhat more in order to make them more usable to their communities, although it may stick in our craws to do so. To the extent that digital copies can be used for preservation, or even as the principal means of local access, libraries can save on the considerable costs of storing all of their print collections securely and accessibly. In other words, there is room to strike a deal, or set of deals, and the deal can facilitate improvement in the quality of education and the quality of discourse.

There is plenty of work to do, but the work is exactly the sort of thing that the academy ought to do well. Learning and teaching matter more than ever, in large part because in the digital age, scholarly literacy is not just for scholars.

Endnotes

1. I am grateful to Matthew Nielsen for valuable discussions and superb research assistance.
2. Paul N. Courant, “Scholarship and Academic Libraries (and Their Kin) in the World of Google,” *First Monday* 11, no. 8 (2006), http://www.firstmonday.dk/issues/issue11_8/courant/index.html.
3. As Stanley Wilder has noted, “Any educational philosophy is doomed to failure if it views students as information seekers in need of information-seeking training.” From Stanley Wilder, “Information Literacy Makes All the Wrong Assumptions,” *The Chronicle of Higher Education* (January 7, 2005): B13.
4. See, for example, Joe Esposito, “Does More Mean More?” Liblicense: Licensing Digital Information (listserv with a searchable archive at Yale University), thread posted January 22, 2006, <http://www.library.yale.edu/~llicense/ListArchives/0601/msg00066.html>.
5. The particular paper I have in mind is Paul A. Samuelson’s work, “The Pure Theory of Public Expenditure,” *The Review of Economics and Statistics* 36, no. 4

(November 1954): 387–89. This paper provides the formalism that allows us to make economic sense of information and libraries, among other things.

6. Thomas Mann points out that good work requires tracking down the references to see if they really say what the author says that they did. One cannot automate this aspect of scholarship, and a long list of relevant citations does not substitute for engagement with the works cited. See Thomas Mann, “The Peloponnesian War and the Future of Reference, Cataloging, and Scholarship in Research Libraries” (paper prepared for the American Federation of State, County, and Municipal Employees 2910, Library of Congress Professional Guild, June 13, 2007), <http://guild2910.org/Peloponnesian%20War%20June%2013%202007.pdf>.

7. Wilder notes that “if [a typical freshman] were to use her library’s website, with its dozens of user interfaces, search protocols, and limitations, she might with some justification conclude that it is the library, not her, that needs help to understand the nature of electronic information retrieval.” *Op. cit.*, B13.

8. This is a characteristic particular to the University of Michigan’s federated search beast, but all such systems share a large set of problems in addition to having a few issues peculiar to each of them.

9. Note that the one important aspect of the current rights environment is that it may have a chilling effect on students’ willingness to use existing works. The Recording Industry Association of America’s (RIAA’s) practice of suing its customers will surely lead at least some students to abjure entirely legitimate fair uses.

10. The terms Library 2.0 and Teaching 2.0 are already taken. A somewhat infelicitous coinage for what I have in mind would be Learning-and-Teaching-in-the-Library 2.0.

11. In an environment where the RIAA sues its own customers, students may be rightfully wary about even legitimate fair uses of existing works.

12. By reducing archiving costs, digitization also helps libraries to avoid being the arbiters of value for future generations. Historians and scholars have found great value in items considered useless in their day, just as they will of many of our artifacts today. We can potentially save much of this ephemera at much lower cost than before, providing of course that we can perfect the process of archiving the often transient content of the digital world.

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