This paper looks at the issue of how scholarly publishing in electronic forums affects the academic tenure process. Currently, scholarly publication as it relates to the merit and promotion process is generally defined as publication in refereed journals or as publication of scholarly books. This definition, implying a fixed language-based text and an identifiable author or multiple authors, is beginning to be questioned in theory and in practice. Implications for faculty members going through the tenure process, and thus for academic libraries and for librarians, who work to be integral players in the university community, will depend to what extent contemporary theoretical positions are put into practice, whether as radical change or as assimilated into current practices of the advancement and promotion process. Aspects to consider include: (1) the producers, publishers, and consumers of literature on the world wide web; (2) the perceptions of the stability and quality of electronic publications by those who hold academic power; (3) whether or not electronic publications are refereed; (4) different attitudes toward technology within and between academic disciplines; (5) if publications are available in both paper and electronic forms, and if the contents differ between forms; and (6) the ease of access, including access to appropriate computer technology and the ability to retrieve works via indexes and other finding aids. (Contains 41 references.) (Author/SWC)
Scholarly Communication and Electronic Publication: Implications for Research, Advancement, and Promotion

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Abstract

In this paper I look at the issue of how scholarly publishing in electronic forums affects the academic tenure process. Currently, scholarly publication as it relates to the merit and promotion process is generally defined as publication in refereed journals or as publishing scholarly books. This definition, implying a fixed language-based text and an identifiable author (or attributable contributions from multiple authors, depending upon the field) is beginning to be questioned in theory and in practice. Implications for faculty members going through the tenure process, and thus for academic libraries and for librarians, who work to be integral players in the university community, will depend to what extent contemporary theoretical positions are put into practice, whether as radical change or as assimilated into current practices of the advancement and promotion process.

In this paper I treat how scholarly publishing in electronic forums may affect the academic tenure process. Several aspects to consider are:

1. the producers, publishers, and consumers of literature mounted on the world wide web,
2. the perceptions of the stability and quality of electronic publications by those who hold academic power,
3. whether or not electronic publications are refereed,
4. different attitudes towards technology within and between academic disciplines,
5. if publications are available in both paper and electronic forms, and
   5a) if the contents differ between forms, and
6. the ease of access, (this includes access to appropriate computer technology and also the ability to retrieve relevant or desired electronic works via indexes and other finding aids.)

Some assumptions underlying these issues relate to divergent views of the Internet as it relates to scholarly production of knowledge. An optimistic view claims that new technology (as epitomized by graphical, easy-to-use browsers for the world wide web, coupled with sophisticated software that can perform citation analysis and intelligently search through vast amounts of information) will transform scholarly publication for the better by allowing people to quickly seek out information, respond to others, publish electronically at a low cost, and speed up the typically long cycle of publishing a peer-reviewed article. [See, for example, Harnad...
In contrast, a less optimistic view points out that scholars do not have time to perform the duties of a publishing house, whether electronic or not (Press 1995, Rowland 1995). Structures and scenarios might price or legislate information beyond the reach of all but a few individuals or institutions, thus decreasing access to information ("Ask Dr. Internet" 1995), or if not so dire, demand subscription fees to access an article database thus firewalling articles (Brent 1995), or not insuring privacy through anonymous access to files (Hickey 1995). Some have noted that the library as it's currently constituted might be bypassed or killed, thus leading to unemployment or drastic restructuring of the jobs for librarians (Cisler 1995, Kling and Lamb 1994). Others note physical harm from the effects of computer technology, a lack of concern for the environment resulting from the manufacturing technology of computer hardware and the increased use of paper (Fuller 1995b). The future reality, of course, will compass most of those viewpoints, at least to a certain extent, (as expressed by more moderate views, such as those of Fuller generally [1995a,b] and Grusin 1994).

While the details of the scholarly publication and tenure process are important in themselves, my interest today is, however, on the differing theoretical positions that underlie varying stances on the situation. Perhaps they are symptomatic of a larger debate between different ideologies or theories. Remember, of course, that most people will profess a viewpoint that is not necessarily one extreme or the other, will often blend arguments from differing stances, and may adapt or modify viewpoints over time.

One approach advocates rational, systematic thought. Things can be organized, classified, understood, and explained. There are procedures, logic, rules, and boundaries, plus a sense of direction, and usually a sense of correct and incorrect, if not actual definitions of right and wrong. Alternatively, things are more complex. Only one way, (one right and wrong) may not be enough, since the world is too complex to understand. Rules based on truths are ultimately futile, since people and their perceptions resist reduction. Individuals are not unitary actors, but are decentered collections of roles, feelings, and motivations. The self is fragmented, multiple, fluid, and nonlinear. What I am describing, in other words, are conversations between aspects of modernism and postmodernism (LeFurgy 1996; Sarup 1993; Selden and Widdowson 1993). Theories that describe the identity of an electronic author as sets of roles with diffuse responsibility for production and consumption of information, though, are in conflict with the current academic reward system, in which lasting, attributable, individual contributions to the body of scholarly knowledge are valued by the members of the committees responsible for recommending and the individuals that ultimately grant tenure. Despite several studies that claim that electronic publishing is medium-neutral, the scholarly reward system still rewards individual, autonomous efforts. For some time to come, the collectivity of individuals controlling the system probably will not redefine advancement criteria to take into account certain features of electronic scholarly publishing, such as easily changeable text revised through public critique and collaboration. Rather, modes of electronic communication that mirror established practices will be rewarded for the near future.

A number of the arguments or points of view that are documented in print and on the Internet (for example, the debate carried on between Stevan Harnad and Steve Fuller in several forums,) attempt to invoke a particular model or set of circumstances to assure that e-publication will remain scholarly and that the current academic stakeholders will still be able to communicate their ideas and receive the rewards and validation they expect through publishing on the world wide web. According to this approach, while the Internet in general, and the world wide web specifically, might be characterized as ever-changing, with as many focal points as web sites, the area of scholarly publication on the Internet is, at the moment, trying to institute procedures and to institutionalize values that replicate the benefits of the scholarly publication infrastructure, particularly quality control issues; that is, peer review, while looking to various advantages that electronic publication can offer, such as speed and delivery of images difficult or impossible in paper.

Stevan Harnad (1995a, b) proposes a model in which he suggests that scholars place their preprints in freely-accessible archives in addition to submitting them to peer-reviewed paper journals. He suggests archiving preprints once they are accepted for publication. As publishers develop a presence on the world wide web, print delivery mechanisms would become less important, and refereed electronic-only journals would prevail. This seems to be the trend, for example in certain areas of physics.
Electronic journals offer opportunities for innovations or enhancements in content (for example, Kling and Covi 1995; Taubes 1996b). A recent issue of Science notes interesting ways that particular journals add hyperlinks to video and audio features. Other e-journals augment or link individual articles to relevant discussion forums, related articles, or notification and alerting services. (Taubes 1996b) (For example, The Journal of Current Clinical Trials, and Science Online itself create hypertext links between related articles and letters to the editor.)

Last year, the Association for Computing Machinery (ACM) proposed a plan that develops "its vision for the future of publication in the electronic age and a program to achieve it." The ACM is made up of computer scientists, and the group is moving aggressively into electronic publishing (Denning and Rous 1995). This document reflects much thought by the ACM, one of the major professional organizations in computer science, concerning the issue of electronic publication. The ACM, not surprisingly, is now promoting electronic publication in general. The Publications Board is moving ACM publications into electronic-only form, citing breakdowns in the traditional system of scholarly publication as one reason. The authors take the stance that articles are collections of objects (individual paragraphs, graphs, charts, and figures) not simply one textual unit. Hypertext links to other items can be included, thus they discuss the copyright implications of the links: they determine that links are citations, thus one need not have special permission to embed a link in one's work. What is not mentioned are any materialist arguments, such as any possible negative side or ill effects of this technology on the physical environment, such as pollution implications, ergonomic problems, the human and electrical energy needed to create and maintain the database, or disparity in access to databases.

Another interesting example is documented by Rob Kling and Lisa Covi (1995). Their article has the provocative title "Electronic Journals and Legitimate Media in the Systems of Scholarly Communication." In their discussion of scholarly communication as a sociotechnical system they examine a range of plausible forms of viable scholarly publication. Since many current social networks are unsure of, suspicious, or critical of electronic journals, one journal, the Journal of Artificial Intelligence Research is the "stealth e-journal of artificial intelligence research" (266), for it offers authors rapid dissemination of their articles to readers, through article posting on world wide web, gopher, and FTP servers coupled with announcements on several Usenet groups. Yet the journal is formatted to look like a paper journal, so that printouts of articles look like photocopies from a print journal. An annual print version is offered for sale, mainly aimed at libraries. Thus the intent of the publishers is to exploit advantages of electronic media for notification and distribution, while "simultaneously calming authors' fears of publishing in a stigmatized electronic medium" (266).

It seems to me that issues surrounding the nature, structure, and value of the peer review process are the stumbling points to the widespread acceptance of electronic-only journals. The structures for acceptance, review and publication of paper-based journals that have an electronic edition do not seem to be an issue, as e-versions are published in tandem with paper versions. The system does not seem to be questioned, rather it is validated. While some commentators have questioned the value or the procedures for peer review on the web (Fuller 1995b), others (such as Harnad 1995b) don't take issue with it as such or assume the process itself will migrate relatively unchanged, though procedural mechanisms will need to adapt to the electronic medium (Odlyzko 1995).

An alternative, though, to the standard process of peer review is a process whereby articles will be posted along with comments of reviewers. I've come across several versions of how this mechanism might work, depending upon whether articles are invited or arrive unsolicited, whether or not all submitted articles are included in the journal, how reviews are solicited, if there are processes to fix a version of an article, to what extent revisions are allowed, and whether or not articles remain easily accessible online as opposed to being archived or removed (Stodolsky 1995; Taubes 1996a; Zenhausern 1995).

The tension seems to be over the degree of control necessary in a system; to create a balance among getting new ideas out and allowing a free flow of ideas among a variety of scholars, not just an elite, while still managing to preserve consensus and high quality of ideas and information within a field. While the world wide web or the Internet in general may be fluid, flexible, and uncontrolled, it appears that the issue of quality control is important at some point in the electronic publishing process. An unreviewed "preprint" is still viewed as preliminary research, since it has not been validated.

Several recent articles have systematically examined aspects of electronic communication as it relates to scholarly communication, publishing, and the reward system (Butler 1994; Cronin and Overfelt 1995; Schauder 1994).
Overall, the authors note that, in general, electronic communication has facilitated scholarly interaction, by allowing people to informally talk through electronic mail and listserv discussion groups and through the sponsorship of online conferences. (Barry 1995; Berge and Collins 1994; O'Haver 1995; and Ruhleder 1995 also note these points.) Yet both through the literature and through anecdotal evidence it appears that more formal means of communication are still necessary in the reward system of universities.

In the literature on electronic scholarly publishing authors are concerned that electronic journals, even if refereed, may not be considered as prestigious as traditional journals that have been around for awhile, in part because they have been established fairly recently (Butler 1995). Such journals may not be mainstream and, in fact, may be experimental, avant-garde, or perhaps even controversial, thus raising larger political issues within a department or university of the appropriateness of particular research areas. As mainstream commercial publishers are trying to cash in on electronic publishing as a way to further target markets or save or shift costs, this issue may not be a relevant assessment in certain fields.

These studies note that quantitative research (surveys and interviews) indicate that in the advancement and tenure process, electronic publications will be treated similarly to works published in traditional, paper-based journals. Yet the general perception is that electronic publishing is risky and that in fact, to receive tenure an assistant professor must play the game according to the traditional rules in the discipline, department, and at the institution. As more and more peer-reviewed journals are moving to electronic publication, though, perceptions and actualities may converge.

Certain scholars may suffer disjunction with the rise of electronic scholarly publishing, since there are implications of impermanence, fragmentation, dissolution of individual boundaries, and loss of control over individual endeavors. Alternatively, others may feel that the current system is too restrictive or not changing quickly enough, since, despite experimentation and innovation, in general, the established system of scholarly publication is moving onto the world wide web. Stevan Harnad (1995b) suggests that rather than no peer review at all with resultant problems, it would be better for the existing system, problems and all, to migrate to electronic forums, where it can change and be modified. (This is, however, one of the points of debate between Fuller [1995b] and Harnad [1995a]).

At present, it seems that the goals of scholarly authors remain the same as in the past. Authors wish to contribute to the body of scholarly knowledge in their field and be recognized for it by their peers. Secondly, authors wish to be recognized for career advancement, especially in achieving tenure from their institutions (Arnold 1995; Harnad 1995a; Tenopir 1995). These goals remain the same despite the delivery medium. The first issue [contributing to the body of knowledge in the field and being recognized by peers] seems to pose less of a threat to electronic publications, if the field is moving to e-journals. The problem is one of perception (Kling and Covi 1995), particularly the mutual perceptions of people on the deciding and receiving sides of the social system granting rewards. That is, the social structures may be lagging behind the new modes of communication.

Cyberspace, or the world wide web can embrace all the differing views, because of the possibilities granted by decentralization and the imagination. The idea of moving to a piece-based work, being able to search the discrete fragments of an article, constituted in pieces and reconstituted through linkages from other pieces seems very post-modern, though the ACM doesn't use the language of postmodernism in their publishing plan. Moving to a document-based, or even an object-based conception of a work is a way of moving out of the unit of a journal issue, volume, or book. According to the ACM plan, readers/searchers access the ACM digital library to make a self-created collection of pieces, bookmarks, or links, that when put together by an author/reader make a new work. For example, a researcher creates a bibliography from citations retrieved from an index or indices (either paper or electronic). Such citations are pointers to other works. Researchers can embed quotes from a work or cite a standard edition when giving a reading of a work of literature. These could be considered links to other texts (that is, intertextuality.) Conceptually this has links to current and past technology, as well as affinities to conversations about the changing role of the author (Arnold 1995; Grusin 1994; Lanham 1993).

**Summing Up**

While network technology and electronic authorship is changing what we think of as text, what is a work, and who is or, print technology will be with us for a long time to come. As representatives of academic presses note, the
For the next few (five to ten?) years, though, depending on one's field, I would not recommend either giving up print or ignoring the electronic media. An assistant professor should keep up with or be ahead of his or her area, which in most fields means being aware of the electronic writings in the field, whether physics preprint databases, e-journals of various sorts, (such as Postmodern Culture, The Journal of Biological Chemistry or Psychology) or U.S. government documents now being distributed only in electronic form. However, even if one's department chair is a postmodernist, for getting tenure, there is no death of the author. It will still be important to publish more than an adequate amount, in respected journals, or whatever journals become, whether online or in print, and in certain disciplines, but not others, to write the book as well.

Looking forward, I believe that since there are more and more scholars, there will be new outlets for "publication" and communication evolving. People will fragment themselves intellectually, through interdisciplinary endeavors as well as through micro-specializations. With more scholars, professional and avocational, people will cluster topically, through both formal and informal means of electronic communication, as well as through more traditional means of professional conferences and publication in print forums. There is a need to be flexible and open to new technologies. Just as the creators of content for many new technologies take their first steps by replicating old formats (films reproduced stage plays, television variety shows replicated vaudeville,) current electronic publishing is replicating print to a great degree. I suggest that as we move away from replicating print we don't lose sight of the strengths of the print/paper media, but people should go beyond replicating paper-based products on the world wide web.

Still, to achieve tenure, young scholars need to push the limits of scholarship in format as well as content along with the tenured scholars that have the freedom to experiment with little fear of censure. Yet we must do so in a way that educates those scholars unfamiliar with or suspicious of cyberspace rather than leaving them behind. From the point of view of a scholar who may hold the varied roles of author, editor, and reader, the decisions that are economically best for an academic journal may not be the most useful delivery and pricing schemes for a scholarly reader. For an author, though, personal goals will be to produce scholarly information quickly that will be widely and quickly accessible, allowing him or her to get on with new research while spending the least amount of time on production processes.

I would hope that the social system of the peer-review process, especially in research universities, will adapt to value contributions other than the scholarly work as currently defined, or that the reward system itself will change. Since the promotion and tenure process is essentially a socioeconomic system, I think that there will continue to be importance placed on establishing value. Yet, one of the strengths of the world wide web is the ability for users to compile media in new documents and to relate diverse works through hyperlinks. Thus it would be a pity if the system did not encourage innovative uses of the electronic technology. With the ability to modify or change one's work, the sequential roles of author and reader blend into simultaneous roles of creator/compiler/commenter. Since these roles appear to have less "authority" than a single personality offering specific works, the current system will have to adapt or be replaced.

Even if one views the world wide web and the Internet in general as a post-modern phenomenon, the counter-tendency will be to either try to impose order and control, or to make sense through describing, listing, or organizing and judging. People will continue to create lists of useful links that we've all seen on many web sites, or to create search engines that offer judgment through selection criteria or evaluative rankings, or to carve out a corner of the world wide web for peer review (Harnad 1995b). It's noted that forms of communication alter discourse (Arnold 1995). Since hierarchical modes of print are moving to a more horizontally organized structure of the world wide web, relationships of ownership and power are changing. It will be interesting to see how the balance shifts.
Endnotes

1. I thank Professor Sue-Ellen Case and an anonymous reader for their comments on earlier versions of this work.

2. Some authors have focused on social/theoretical aspects of electronic publication. See, for example, Amiran et al. (1992); Bishop (1995); Grusin (1994); Hales (1993); Kling and Lamb (1994); and Lanham (1993).

3. These characterizations of modernism and postmodernism are derived from several sources; I have heavily borrowed from the description by Bill LeFurgy (in his "In CinC" column in Culture in Cyberspace, 1(8) (April 1, 1996) [http://www.radix.net/~wlefurgy/cinc08.htm] describing an explanation of postmodernism in Life on the Screen by Sherry Turkle http://www.mit.edu:8001/people/sturkle/).

4. Harnad's writings can be found at [http://cogsci.soton.ac.uk/harnad/inpub.html or ftp://ftp.princeton.edu/pub/harnad/Harnad]; several of Fuller's are in Information Society. 11(4) 1996.


6. For example: "EJournal is a peer-reviewed, academic periodical." (http://rachel.albany.edu/~ejournal/ejournal.html) and "Psycology is a refereed electronic journal sponsored by the American Psychological Association." (http://www.princeton.edu/~harnad/psych.html) and "Electronic Publishing-Origination, Dissemination, and Design (EP-ODD) is a refereed academic journal that sets out to explore the huge potential of electronic publishing." (http://www.ep.cs.nott.ac.uk/wiley/journals/epo)

7. An interesting example is in Hitchcock et al. (1996), in which the authors justify presenting a non-peer-reviewed work on the basis of the currency and relevance of their work. They note that they might put an abridged version of the work in a refereed journal. In addition they solicit comments on this online version to serve as "a sort of open peer commentary." http://journals.ecs.soton.ac.uk/survey/survey.html

8. Am I eliding the people writing, reading, and evaluating here by using passive voice and scholarly language conventions?

9. Since I found these articles in print-media, you may wonder if things have changed in the year since they have been published and the longer time since they have been written, as a result of the rapid changes in electronic publication and general acceptance of the world wide web. Recall, though, that we are dealing with a system that changes slowly. I recently checked with a few faculty colleagues in the sciences and humanities, who say that individual contribution (or attributable contribution in co-authored articles) to respected, peer-reviewed journals (or writing books in the humanities) is still the major criterion for advancement.

10. Could we think of this rhyzomatically? both of the work, and by extension, the author?

References


Zenhausern, Robert. ["JUPR on Listserv@sjuvm.stjohns.edu"] found through the HyperJournal contents page: [http://www.gold.ac.uk/history/hyperjournal/contents.htm ] (1995) the JUPR announcement is listed under [http://www.gold.ac.uk/history/hyperjournal/jupr.htm ] (1995) This item is an announcement of the Journal of Universal Peer Review, available through listserv. Dr. Zenhausern is the owner of the list.

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