

Predicting the Future of Scholarly Communication

Faculty Values, Disciplinary Cultures, and Advancing Careers

**Diane Harley, Ph.D., Principal Investigator
Center for Studies in Higher Education
University of California, Berkeley**

Project Website and Associated Document Links:

<http://cshe.berkeley.edu/research/scholarlycommunication>

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- Describe some of the factors underlying slow rate of change in scholarly communication practices – they aren't technical
 - Discuss incentives and motivations in decisions about disseminating research
 - Suggestions for moving from rhetoric to empirical research that can inform policy and investments

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**Team: D. Harley, C.J. King, S. Kryzs Acord,
S. Earl-Novell, S. Lawrence**

- **Academic Values and Scholarly Communication Practices—Talk to scholars**
- **Distinguish between Archival publishing and what we call In-Progress publishing (2005)**
- **Anthropologist, Not a publisher, software developer or librarian.**
- **Empirical approach. I don't make the news, I only report it**

Motivations and Approach

- **Assess the criteria by which faculty decide when and in what venues to communicate the results of scholarly research—at all stages.**
- Analyze what roles universities and faculty play in resolution of the perceived “crises” in scholarly communication.”
- **Premise: Disciplinary traditions and culture matter.**

***Distinguish: In-progress* communication VS fully peer-reviewed **archival** publication**

Dichotomous situation:

- **Electronic forms of “print” (and other) publications *consumed* heavily.**
- **Perceptions and realities of the reward system = strong adherence to conventional, high-stature publications as record for reporting research and having it evaluated institutionally.**
- **Promotion depends predominantly upon final, fully peer-reviewed archival publication (arts, professional schools different products).**
- **Making a reputation also dependent on where one publishes plus “in-progress” communication activities (e.g., conferences, service, public engagement, technical contributions, etc.)**

Methods

Research Universities

- **45 mostly elite institutions**
- **160+ scholars**
- **12 disciplinary case studies**
- **Literature reviews, Many meetings such as this**
- **Daily environmental scans (news, listservs, blogs, twitter, announcements, etc.)**

Planning project. 2005-2006

N=5 Anthropology, Biostatistics, Chemical Engineering, Law and Economics, English-language Literature.

Larger project. 2007-Present

N=7 Astrophysics, Archaeology, Biology, Economics, History, Music, Political Science.

NO perfect set of disciplines. We focused on diversity, attributes, affordances.

Informants

Relevant stakeholders

- **Faculty primarily / R1s.**
- **Range of seniority (tenured, pretenure, postdocs, grad students).**
- **PLUS high level administrators, editors, publishers and librarians.**
- **A variety of “Grand Challenge” initiatives.**
- **Many more formal and informal conversations; attendance at meetings, literature and web review, tracking online interchanges. Ongoing.**

Interview Protocols/Topics

- (1) Tenure and promotion, making a name**
- (2) Criteria for disseminating research at various stages
(publication practices, new publication outlets, new genres)**
- (3) Sharing (w/ whom, when, why or why not?)**
- (4) Collaboration (w/ whom, when, why or why not?)**
- (5) Resources created and consumed; Needs**
- (6) Public engagement**
- (7) The Future**

Drivers of Faculty Behavior

Based on our research, the primary drivers of faculty behavior:

- **Career advancement**
- **Moving the field forward**
- **Receiving credit and attribution**

Faculty Expectations re SC

- **Assume access to others' scholarship will be provided and costs covered by the institution or someone else.**
- **Don't want to slog through dreck/Need and use peer review as a filtering mechanism.**
- **Want relative speed to publication and the highest prestige outlet as possible given the nature of what is being published and the targeted audience. OA not the issue for many. Audience and prestige more important.**
- **Want work protected from rip-off/Must receive credit.**
- **Want high quality pubs/editorial/production values/visibility and persistence for their best work (Publishing and editing cost money—someone has to pay for it.)**
- **Back-end data support (in some fields)**

The Current Publishing Landscape

Scholars use a range of mechanisms for disseminating scholarship at various stages.

Within any given discipline there may be a variety of publishing strategies available to authors. But...

Scholars in a field can name top 3-5 journals and/or presses w/o missing a beat.

- In high paradigm fields like **physics, astrophysics, and mathematics**, (computational biology?) discipline-specific repositories, such as the arXiv, are essential outlets that exist alongside formal commercial- and society-owned journals. Massive data bases, shared, very expensive telescopes, satellites, etc. Computation. Visualization. Multiple authorship running in dozens.
- **Economists and quantitative political scientists** use working paper repositories, such as SSRN and personal websites, for disseminating research but continue to rely heavily upon society and commercial journals for final archival publication. Long lag times to publication. Varied data sources, some proprietary. Sole or dual authorship common. Publishers often require open data.

The current publishing landscape (cont'd)

- In **computer science**, peer-reviewed conference proceedings are the most prestigious archival outlet, but distribution of scholarship using more open methods, such as posting on personal websites, is not uncommon. Software as product. Multiple authorship. Scan = much is locked down.
- **History and archaeology, qualitative poli sci**, and other fields of the H/SS, such as **languages and media studies**, rely heavily on the book/monograph for long arguments; journals are still important as a means for disseminating short arguments, book reviews, and other communications. Rich media and graphics, maps, GIS, NLP. Sole authorship the norm. Sharing data unusual. Digital humanities?
- **Musicology** includes “art” historical studies of western music, computer composition, ethnomusicology, and music theory. As expected there are multiple outlets used ranging from books and critical editions to highly competitive and selective society journals to encyclopedias to MP3s, CD’s, new instruments, software, and networked performance. Sole authorship the norm.

The current publishing landscape (cont'd)

- In **Molecular and cell biology**, and perhaps other sciences such as **chemistry**, that are *fast-moving, well-funded, highly competitive, and have commercial potential*, there is a MUCH more limited range of outlets (although numerically many more journals in some subfields).
- The journal article reigns in these fields and the more prestigious the journal, the better from the perspective of faculty at competitive institutions. *Nature, Cell, Science. (Former 2 the enemy of reasonable costs?)* PloS journals have risen in prestige (PloS One?).
- Society journals (with scholar editors) the most trusted.
- Preprint servers rare. Publication lags are exceptionally short. Large databases linked to publication are common. Impt. of speed, visualization, replication, fraud detection. Multiple authorship. Open data in genomics, etc.

Peer Review the Coin of the Realm

Q's = Where faculty publish and why; how faculty are judged in promotion.

We did NOT set out to study peer review. We heard:

- Value system **supporting assessment of and perceived quality of research.**
- Primary mechanism through which **research is nurtured and made both effective and efficient.**
- Excellent **quality filter** for the proliferating mass of scholarly information available on the web.

More difficult for time-pressed scholars to sift through it all.

This will get worse. Result in need for more formal gate-keeping embodied in current publishing system? Other systems?

Tenure and Promotion (T&P): Built-in flexibility?

- **Stellar Publication record impt for T&P.**
Service, Teaching, Public Engagement. Impt. but age and institution dependent.
- **“Groundbreaking” “Moves field forward” “Original”**
Judged of high quality by internal and external reviewers
- **Quality over Quantity. Metrics such as impact factor viewed w/ suspicion.**
- **Exceptions to the “rules” made; lots of filtering before someone hired (“good fit” within the department).**
- **Emphasis on interpretive work vs. cataloguing or curating.**
(Databases, cell lines, critical editions, software: credited in T&P decisions; rarely sole criteria in most fields.)
- **Assessing multiple authorship and interdisciplinary work a growing challenge.**

Peer Review and the Advancement Process

- **Heavy reliance on peer reviewed publications aid institution/T&P committees and external reviewers in evaluation of scholarly work.**
- **Impt. of external reviews in T&P. Damning: “Who?” “High impact” publications are a way of making a name.**
- **New journals, new genres acceptable if peer reviewed.
Worries that lack of peer review is associated with newer, untested forms of publication.**
- **Advancement process can and *should* be supportive (and unprejudiced) of non-traditional publishing models, provided that peer review is strongly embedded.**
- **Written policy: New electronic genres should NOT be undervalued in consideration of advancement. Does actual practice vary?**

Generally, chairs, deans, and provosts report seeing few alternatives to traditional scholarship in tenure and promotion dossiers at highly competitive universities.

The young leading the way a mythology? Exceptionally conservative and hew to the norms set by their mentors.

Extensive public engagement, data curation, etc. may be "best left until after tenure." As with other activities not directly in service of high impact publication.

Ubiquity of Peer Review in the Lives of Scholars

- **Developmental peer review (informal)**
Feedback on work-in-progress from informal networks (e.g., laboratory discussions, sharing drafts with colleagues, internal wikis, blogs).
- **Pre-publication peer review (more formal)**
Invited talks, symposia, and various-sized conferences. Preprint servers, web pages.
- **Publication-based peer review (formal)**
Different editorial and peer-review models: single- or double-blind peer review, student-edited journals, prestigious invited contributions, “communicated” papers in (*PNAS*), or “lightly” reviewed edited volumes.
- **Post-publication peer review (formal and informal)**
book/performance reviews, letters to the editor, later citations (including various bibliometric citation counts), author-meets-critics conference sessions, article or book prizes, inclusion on course syllabi, journal clubs, and news and blog coverage, etc.
- **Peer review of data and other scholarly products**
- **Institutional peer review in tenure and promotion cases**
- **Peer review for grants/funding**
- **Cumulative peer review over a career**
Career work is evaluated for superlative prizes, memberships, etc.

Peer Review: Problems and New Models.

Meeting 2010. *Courant, Schekman, Yamamoto, Wolpert, Jewel, Wheatley, Schulenburger, Faran, Lynch, Withey, Hilton, et al.*

**PEER REVIEW IN ACADEMIC PROMOTION AND PUBLISHING:
Its Meaning, Locus, and Future (2011)**
<http://cshe.berkeley.edu/publications/publications.php?id=357>

- Many perceived problems w/ peer review (long history of complaints)
- Lack of speed, conservatism, bias, low quality reviews, non-scholar editors.
- Finding good reviewers can be a challenge. System overwhelmed.
- Exceptionally costly to the institution to subsidize peer review via faculty salaries.
- Citation metrics? Can be gamed. Are not always accurate. Corrupt?
- “Open” crowd-sourced peer review? No real success so far. Who has time?
- Fraud and plagiarism detection. Ensuring “trust” will become more pressing.
- Echo chamber problem in any closed system.

Peer Review in Promotion and Publishing: Separate but Deeply Intertwined

Concern that T&P committees rely too heavily on proxy of imprimatur and citation metrics.

Publication as a proxy for assessing scholarship follows from the exponential growth and resulting compartmentalization of knowledge across the Academy, which has meant that individuals within a faculty can no longer effectively review the work of their peers.

- **Publication expectations trickle-down from R-1 to aspirant institutions, including internationally—**
- **Imperatives to rise in international league tables.**
- **Explosion of low quality publications (“arms race,” “inflationary currency”). Peer review and reviewers are being swamped**
- **Proliferation of (esp. commercial) publishing entities/journals**

= Economically unsustainable system?

Recommendations

- **Improve peer review in tenure, promotion, and grantmaking to reduce the reliance on secondary indicators and emphasis on quantity vs quality.**
- **Read a candidate's tenure/promotion dossier and shun Impact Factors and other bibliometrics (and altmetrics?) as primary indicators of the quality of that scholar's work.**
- **Individually we must model good publication practices that benefit society and the academy. Vigilance required against cabals and echo chambers.**
- **Highest levels of university leadership must make the issue a priority.**
- **Limit what goes through the peer-review process, and encourage new forms of publication for work deemed more ephemeral and of lower impact.**

Publish then Filter?

Are Web 2.0/Wisdom of crowds/Crowd-sourced publication and peer review the answer to our problems?

First: Sharing What? With whom? When?

Early “half-baked” work? Universally not shared publicly.

Young scholars especially conservative re sharing in-progress work.

Sharing In-Progress Work

- **First w/ trusted circle of colleagues. Modicum of privacy needed.**
- **Conferences/seminars. Impt –smaller the better for early work.**
- **Public posting of Working Papers (different from posting preprints/post prints)**
- **Not posted until it has been vetted by inner circle.**
- **“Penultimate” drafts.**

Personality, discipline, and career stage.

- **Astrophys, physics, math—arXiv ;**
- **Econ, Quant Poli Sci --IRs, personal websites**
- **Bio? Not much in MCB before publication**
- **History/Arch/Musicology? Not much**

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- **How will new genres, non-traditional scholarly products (data, blogs, websites, tool-building, etc.) be peer reviewed? Who will do it?**

Factors Working Against Open Peer Review of New Genres, Data, etc.

Peer review already takes an immense amount of faculty time -- publication, graduate student mentoring, grants, writing external letters, providing feedback to colleagues, etc.

Open Peer Review? Will readers trust findings that are openly peer reviewed by a readership, which, in some cases, is in lieu of expert peer review?

Who has the time for commenting in open fora? Or reading random comments?

Popularity contests? Echo chambers? Motivating the “right” peers to provide commentary can be problematic.

The question of data sharing

“Data citation refers to the practice of providing a reference to data in the same way as researchers routinely provide a bibliographic reference to printed resources. The need to cite data is starting to be recognised as one of the key practices underpinning the recognition of data as a primary research output rather than as a by-product of research. While data has often been shared in the past, it is seldom cited in the same way as a journal article or other publication might be. This culture is, however, gradually changing.

If datasets were cited, they would achieve a validity and significance within the cycle of activities associated with scholarly communications and recognition of scholarly effort.”

Australian National Data Service

<http://www.ands.org.au/guides/data-citation-awareness.pdf>

Assumption in this statement:

That data standing alone, without *both* an interpretive layer (such as an article or book) and having been peer reviewed, will be weighted the same as articles and books in Tenure and Promotion (T&P) decisions.

Overload? Changing Journal Policies (1)

***The Journal of Neuroscience* announced its decision to cease the publication of supplementary data, citing two main reasons (Maunsell 2010).**

First, reviewers cannot realistically spend the time necessary to review that material closely.

Second, critical information on data or methods can be lost in a giant supplementary data package.

Overload: Changing Journal Policies (2)

"Enough is Enough" Christine Borowski, July 4th, 2011
editorial published in the *Journal of Experimental Medicine*
***(JEM)*.**

“Complaints about the overabundance of supplementary information in primary research articles have increased in decibel and frequency in the past several years and are now at cacophonous levels. Reviewers and editors warn that they do not have time to scrutinize it. Authors contend that the effort and money needed to produce it exceeds that reasonably spent on a single publication. How often readers actually look at supplemental information is unclear, and most journal websites offer the supplement as an optional download...”

More Research, Less Rhetoric *Empirical research should inform policy and investments*

- ***Successful models of T&P review? Which institutions rigorously and successfully engage in “best practices” (“thick reviews”, limiting the number of publications in a dossier, an/or ignoring impact factors completely) and which rely too heavily on secondary indicators? Effects?**
- **Actual costs (incl. social and opportunity costs) to teaching-intensive institutions of diverting academic labor from teaching to increasing research output (measured by publications, impact factors, etc.)?**
- **How do research assessment exercises, league tables, and cash incentives to publish in high impact journals affect the general quality and number of research publications?**
- ***Longitudinal and comparative ethnographies of carefully chosen universities could provide a window into how or if resolutions, declarations, research assessment exercises, and institutional aspirations to advance in league tables are positive or negative levers for substantial change.**

More Research, Less Rhetoric

- ***Gold OA policies (e.g., U.K. Finch Report) a positive development for the academy or do they represent vanity publishing that shifts costs onto authors? Will articles in these outlets be weighted as heavily in T&P decisions as the more traditional outlets and on what basis?**
- ***Survey authors in various higher education sectors and disciplines on how or if their promotions were affected by their publication choices in Gold OA journals.**
- **Opt-out Open Access resolutions (e.g., MIT, Harvard, UC) implicitly or explicitly recommend all kinds of scholarship be considered in T&P decisions. Systematically track shifts in publishing behavior of their faculty (at all career stages).**

More Research, Less Rhetoric

- ***Which readers want publications bursting with embedded data and linked commentary (with associated exorbitant production costs)? Which want smaller slices of curated scholarship (e.g., traditional journals)? Surveys, with good response rates, and disciplinary based ethnographic studies.**
- **What relationship should the use of new metrics have to the more desirable qualitative “thick” reviews in academic promotion, grant competitions and university rankings?**
- ***Where are forms of hybrid quality-assessment models demonstrated to be more effective, and cost less, than the current system? And in what disciplines?**
- ***Are there models of successful crowd-sourced or alt-metric "peer review" applied to large data sets, and can they be applied outside of those cases as measures of quality (and be recognized in T&P decisions)?**

Conclusions

- **Scholars will read a piece of work once. Time is limited and coveted.**
- **In career advancement, distinguish—open access journals, postprints of published material, well-developed preprints and working papers published on web site, vs blogs and other casual non-peer reviewed postings.**
- **Disciplinary culture and tradition, PLUS individual’s imperative to advance his/her career and field will always be important in competitive environments.**
- **Sharing is complex. Building systems that assume early sharing of ideas can be a waste of time if ignorant of culture in a field.**
- **Young scholars? Adopting norms of mentors. They are very conservative in archival publication choices and sharing behavior.**
- **Don’t confuse predictions about “social scholarship” enabled by Web 2.0 with hard realities of T+P requirements in highly competitive professional environs (and the peer reviewed publishing demands in those fields).**

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Diane Harley, Principal Investigator

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Scholarly Communication Report

http://escholarship.org/uc/cshe_fsc

Peer Review

<http://cshe.berkeley.edu/publications/publications.php?id=379>

dianeh@berkeley.edu