Demystifying the Scholarly Publishing Landscape

March 3, 2021

Eleta Exline, MSLIS, Associate Professor, Scholarly Communication
Emily Poworoznek, MLIS, Associate Professor, Engineering & Physical Sciences
Patti Condon, PhD, Assistant Professor, Research Data Services
Open Access is a response to a flawed publishing system and the assumed affordances of technology.
Number of journals changing from small to big publishers, and big to small publishers per year of change in the Natural and Medical Sciences and Social Sciences & Humanities.

https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0127502
"They take our free labour, package it, and sell it back to us for windfall profits. The result is that one of our core activities - sharing research - is largely governed by the drive to deliver shareholder value. It doesn’t have to be that way."

Jefferson Pooley, Muhlenberg College

Price increases of 4-6% each year drive the cost of scholarly journals upward far in excess of general consumer goods, as represented by the Consumer Price Index. This trajectory strains library and university budgets.

Journal inflation from Library Journal Annual Periodicals Price Surveys (Table 9: Clarivate/ISI cost history).
it's easy to say what would be the ideal online resource for scholars and scientists: all papers in all fields, systematically interconnected, effortlessly accessible and rationally navigable, from any researcher's desk, worldwide for free.

- Stevan Harnad
Why does it cost millions to access publicly funded research papers? Blame the paywall

Canadian universities struggle to pay for access to their own research reports as publishers profit

Kelly Crowe • CBC News • Posted: Mar 09, 2019 9:00 AM ET | Last Updated: March 9
Open Access is part of a movement to increase the transparency and robustness of research, accelerate discovery and innovation, and democratize knowledge.
In 2020 Open Access distribution surpassed subscription distribution.

Open Access is a concept, not a model. It can be achieved in many ways.
Open Access is...freely available on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited.

Budapest Open Access Initiative, 2002

Creative Commons Attribution 3.0 http://www.budapestopenaccessinitiative.org/read
<table>
<thead>
<tr>
<th>Type</th>
<th>Method</th>
<th>Costs</th>
<th>Citation*</th>
<th>Features</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>Repositories</td>
<td>Free to authors</td>
<td>+33%</td>
<td>Publish where you want. Deposit in a repository following publisher rules.</td>
<td>May be delayed. May not be the final version.</td>
</tr>
<tr>
<td>Gold</td>
<td>Fully OA journals</td>
<td>Free to moderate APC. $3000</td>
<td>Mixed -17</td>
<td>Many options and models. Tiny stand-alone to mega journals.</td>
<td>Heterogenous mix of publishers. Fraud risks in unknown journals.</td>
</tr>
<tr>
<td>Hybrid</td>
<td>Mixed subscription and OA options</td>
<td>Moderate to very high APC. $11,200</td>
<td>+31</td>
<td>Known subscription journals, cost tied to prestige (market value) and subscriptions.</td>
<td>High price barrier deepens inequities. Double dipping.</td>
</tr>
<tr>
<td>Bronze</td>
<td>Temporary access granted by journal.</td>
<td>Copyright transfer to publisher.</td>
<td>+22</td>
<td>Known journals. Funded by subscriptions.</td>
<td>Access granted and removed by publisher at will. No authors rights. Not really OA.</td>
</tr>
</tbody>
</table>

*Subscription only journals have a citation effect of -10. (Piwowar et al., 2018)
Preprints and self-archiving. Same, similar, different?

More than 80% of publishers allow one or more versions of an article to be posted in a repository.
Reliance on journal prestige as a proxy for quality is a barrier to the progress of Open Access.
Crazy but true: concerns about remaining a scientist is #1 barrier about acting according to scientific values
#assessingresearch
The faculty need to be publishing in the very best journals which the library has quit subscribing to due to budget cuts. Luckily you can still read abstracts on the gated copies!
THE EVOLUTION OF ACADEMIA

Publish

Publish or Perish

Publish in High Impact Journals or Perish

Publish Frequently in High Impact Journals and Maybe You Won't Perish

facebook.com/pedromics
SIGNS THAT A JOURNAL MAY BE PREDATORY

- Many are open access and require fees
- Quality is of substantial concern: poor or no editing and poor or no peer review
- Unethical business practices such as offering services not as advertised
- Making false claims about impact factors or indexing
- Failure to adhere to accepted standards of scholarly publishing
- Aggressive solicitation of manuscripts
Author susceptibly to fraudulent journals

• Unawareness: lack of awareness that fraudulent journals are a threat (71%)

• High pressure: the need to publish frequently and quickly to advance

• Social identity threat: researchers in developing countries believing that journals based in the US and UK will reject them because of bias

• Lack of research proficiency: being rejected or believing one will be rejected from established journals because of poor methodology or lacking guidance around the norms of research and publishing

“One of the main conditions to extend my university contract is to publish. I have to publish at least once a year, if I do not, I will get fired. Many journals take months to publish, but this journal only took a month to publish. That's why I published there, because it was fast.”
Are you submitting your research to a trusted journal?

Publishing your research results is key to advancing your discipline – and your career – but with so many journals in your field, how can you be sure that you’re choosing a reputable, trustworthy journal?

Tips to confirm a journal’s credentials and decide if it will help you reach the right audience with your research, and make an impact on your career.

Take control of your career at thinkchecksubmit.org
Disciplinary Differences
Medical sciences

Authors: Support OA but prioritize journal reputation/impact factor and speed of publication. Authors from lower income countries over-represented in fraudulent journals.

Publishers: Initially were slow to move to OA models. Some offer self-archiving options, often with embargo. Rapid growth in OA journals since 2010.

Other factors; Funding is often available for APCs, so Gold tends to be the primary route to OA. Fewer repositories, except for Pub Med Central, which is connected to NIH funded public access mandates. This mandate has helped drive OA uptake.
Natural and technical sciences

Authors: Long tradition of preprints in physics, mathematics, astronomy, and information technology. Rapid publication, high visibility and large readership are most important in these fields. Biology preprints have taken off in last decade. Chemistry and engineering have low OA uptake and value journal publication more than other factors.

Publishers: Initially slow to move to OA models. Steady growth in Gold OA in non-pre-print fields.

Other factors: Grant funding, funder public access mandates, and global partnerships (SCOAP3) push OA along.
Social Sciences

Authors: Low awareness of OA overall, but some consider the practice a highly important in career advancement. Green self-archiving is predominant route to OA.

Publishers: OA models not prominent.

Other factors: While funder public access mandates are in place, less research is funded overall, so access to APC funding is low. Embargoes tend to be longer. Complexities around OA monograph models slows growth in this area and monographs are generally not included in funding mandates.
Humanities

Authors: Low uptake of OA overall. Opposition to OA based in concerns about quality and plagiarism. Green self-archiving is predominant route to OA, but Hybrid may also be important. Perception of publication outlet quality is based on a symbolic hierarchy rather than impact factors. Speed is not a primary factor.

Publishers: Slow to move to OA models because of sustainability, but there are open book publishing models developing that are supported in various ways.

Other factors: While some assume humanities are opposed to sharing, lots of sharing place takes place via wikis, blogs, and digital humanities. The high expense and time investment of book publishing and other long form works complicates OA.
<table>
<thead>
<tr>
<th>Field</th>
<th>Green</th>
<th>Gold</th>
<th>Hybrid</th>
<th>Bronze</th>
<th>Closed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biomedical Research (n=11,360)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics (n=3,303)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical Medicine (n=27,066)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health (n=2,121)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Earth and Space (n=5,975)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biology (n=6,327)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physics (n=9,547)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychology (n=2,257)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Sciences (n=3,143)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional Fields (n=2,418)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering and Technology (n=14,831)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemistry (n=10,397)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Open Access initiatives that do not acknowledge differences in practice contribute to inequities.
Who has access to Open Access?

Access to Open Access publishing aligns with resources and job security. The likelihood of publishing OA increases when you are:

- Male
- In a STEM discipline
- Grant funded
- Employed by a prestigious institution
- Established in your career

Open-access fees creating ‘a crisis’ for African research

By Christiaan van der Merwe
Latin America’s longstanding open access ecosystem could be undermined by proposals from the Global North

Open access is often seen as a process of switching from the existing closed-subscription model of scholarly communication to an open one. But Latin America has had an open access ecosystem for scholarly publishing for over a decade, and the recent AmeliCA initiative seeks to develop cooperative scientific communication further still. These efforts, however, could yet be undermined by recent open access proposals from the cOAlition S consortium of research
Open Access / Questions

What are the publishing norms of your discipline and organization?

Do you have sources of funding to pay fees? Do you have public access obligations?

How frequently do you publish?

Do you want impact based on the venue or impact from wider distribution?

What are the needs and wants of co-authors? Do you need to accommodate differences in practices between disciplines?
Open Access / Ethical considerations

Do researchers have an obligation to share widely in the service of the greater good?

Are you personally positioned to take publishing risks to accelerate changing publishing practices?

Given the many competing models, how do you determine which publishing and evaluation practices produce the best outcomes for society?

Which practices reproduce or intensify existing inequities, and can you avoid them?
Open Access / Resources

Think/Check/Submit: https://thinkchecksubmit.org/

Sherpa Romeo: https://v2.sherpa.ac.uk/romeo/

Directory of Open Access Journals: https://doaj.org/


UNH Scholars Repository: https://scholars.unh.edu/

What is a preprint (AKA pre-print)?

Basically, a preprint is a research article manuscript that an author posts publicly prior to peer review.

An e-print is an electronic preprint or postprint.

A postprint is a version posted after revisions based on peer-review; it is usually the accepted version and can be the final manuscript version. Confusingly, the term is sometimes applied to the published version of record.
Example:
Document relationships

Edited graphic by Thomas Shafee, adapted from diagram by Ginny Barbour
Disciplines that adopt preprints tend to have fast-moving research that can be openly shared. Preprint web access began in 1991 with physics on arXiv ...

Graphs & data: https://arxiv.org/help/stats/2020_by_area/
Preprints / Disciplinary perspectives

... and has expanded rapidly in the past decade. Even medical research now has a dedicated platform as of 2019, medRxiv.

“Caution: Preprints are preliminary reports of work that have not been certified by peer review. They should not be relied on to guide clinical practice or health-related behavior and should not be reported in news media as established information.”

[Banner on medRxiv home page]
Preprints / Landscape

Preprints by year (Dimensions 3/3/2021)

Preprints by server (Dimensions 3/1/2021)
Preprints / Are they used?

Figure 3. Preprint use by discipline. Whether respondents had ever 'viewed/downloaded a preprint' (a) and whether they or a co-authors had ‘submitted a preprint’ (b), broken up by discipline. Respondents who did not answer the question or who answered 'not sure', are not included in the graphs.

Preprints / Questions

1. Why post?
2. Why not?
3. Are there journals that won't accept a manuscript that has been posted online?
4. Are there intellectual property concerns?
5. If I post and there is an issue, can I withdraw it?
A "preprint" can rest its case without going further

Preprints have mostly preceded journal articles but some remain as preprint-only and may even become famous just as they are. Grisha (Grigori) Perelman published his papers regarding the proof of the Poincaré conjecture this way [Entry image from Google Scholar]:

The entropy formula for the Ricci flow and its geometric applications
We present a monotonic expression for the Ricci flow, valid in all dimensions and without curvature assumptions. It is interpreted as an entropy for a certain canonical ensemble. Several geometric applications are given. In particular,(1) Ricci flow, considered on the …

Cited by 2486  Related articles  All 19 versions  ⚪️
Preprints / Ethical considerations

• Health / Safety
• Intellectual property concerns
• Ambiguity / Duplication
• Potential for misuse


Preprints / Resources

Sherpa Romeo
"making publishers' and journals' open access policies transparent and easy to understand."

ASAPbio's Directory of preprint server policies & practices: https://asapbio.org/preprint-servers

Publisher policy overview: https://en.wikipedia.org/wiki/List_of_academic_publishers_by_preprint_policy

COPE (Committee on Publication Ethics), provides guidance for publishers, editors, and authors; members include publishing companies and independent journals that meet their set criteria. 2018 COPE discussion paper on preprints
Most federal funding agencies have “public access” policies. The policies mandate that research results from projects they have funded be made publicly available within a certain time frame.
Public access policies from US federal funders

Each funding agency has different policies concerning public access to publications resulting from funded research.
Larivière, V., & Sugimoto, C. R. (2018). Do authors comply when funders enforce open access to research? https://www.nature.com/articles/d41586-018-07101-w
Public access / Questions

1. Does my funding agency have a public access (or open access) mandate?
2. What manuscript version does my funder want?
3. How do I inform the journal about the public access mandate prior to publication?
4. When do my publications need to be made publicly available?
5. Where do I need to submit them for public access?
Public access / Ethical considerations

Authorship & Publication

Intellectual Property

Social Responsibility
Public access / Reading and resources

- OSTP Public Access Memo - Expanding Public Access to the Results of Federally Funded Research
- Browse SPARC Resource - Article Sharing Requirements by Federal Agency
- Sherpa Juliet: Research Funders' Open Access Policies
- The Registry of Open Access Repository Mandates and Policies (ROARMAP)
- Larivière, V., & Sugimoto, C. R. (2018). Do authors comply when funders enforce open access to research?
Publishing research data (and associated metadata)

Publishing research data goes by many names

- Public access
- Sharing
- Archiving
- Open data
- Data papers (w/ associated dataset)
Publishing research data (and associated metadata)

- Enable others to replicate and verify results as part of the scholarly process
- Receive credit for data creation
- Meet the expectations of sponsors, funders, publishers, and institutions
- Reduce the costs of duplicating data collection
- Allow researchers to ask new questions and conduct new analyses, and improve research methods by combining datasets
- Create a more complete understanding of a research study by linking to research products like publications & presentations
I would be willing to share data across a broad group of researchers (%).

- ENVIRONMENTAL SCIENCE/ECOLOGY: 96.1%
- SPACE AND PLANETARY SCIENCE: 94.4%
- INFORMATION/COMPUTER SCIENCE: 92.5%
- HYDROLOGY: 90.9%
- ATMOSPHERIC SCIENCE: 89.8%
- MARINE/OCEAN: 89.7%
- GEOLOGY/EARTH SCIENCE: 86.9%
- BIOLOGY: 84.9%
- PHYSICAL SCIENCES: 82%
- OTHER: 80.3%
- AGRICULTURE AND NATURAL RESOURCES: 80.2%
- PSYCHOLOGY: 80%
- ENGINEERING: 78.5%

---

Publishing data / Questions

1. Does my funding agency or the journal in which I am publishing require me to publish my data?

2. Is it responsible to share my data? Is it sensitive, classified, or proprietary? Does it contain identifiable information?

3. What kind of data do I have and what do I share?

4. Where do I publish/share my data?

5. When do I share it?
Publishing data / Ethical considerations

Authorship & Publication
Data Management
Export Controls
Human Subjects

Intellectual Property
Rigor, Reproducibility & Replication
Social Responsibility
Publishing data / Reading and resources

- **Browse SPARC Resource - Data Sharing Requirements by Federal Agency**
- **Registry of Research Data Repositories**
- **Publisher Data Availability Policies Index**
- **Data Repository Comparison Chart by MIT Libraries**
- **Data Catalog @ UNH Scholars’ Repository. An inventory of data that UNH researchers have deposited into external repositories**
- **Contact Patti to discuss your options!**
General Resources

Responsible Conduct of Research & Scholarly Activity LibGuide
UNH Data Management Toolkit
On the Horizon (or happening now!)

- More models for Open Access monographs
- The rise of alternative metrics
- Article based evaluation practices replace journal impact
- Move from author pays to institutional funding of OA via negotiated rates
- Subscribe to OA models
• Federated access/the decline of the journal concept
• Preprint-required-first journals (ex. SciPost, eLife)
• Soup to nuts OA publishing (watch for wrinkles)
• Open peer review through overlays
• Dedicated servers for non-Latin script language preprints
• Options for direct & indirect preprint indexing and distribution (ex. Dimensions, Google Scholar, OSF)
• Preregistration of research
• Publication of protocols
• Data and Source Code
Thank you!

Questions?

Eleta Exline eleta.exline@unh.edu
Emily Poworzneke el@unh.edu
Patricia Condon Patricia.Condon@unh.edu