Culture change in academia: Making sharing the new norm

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Current academic culture

Images: UR - openscience.com; LL - John R. McKiernan; LR - Opensourceway
Change requires action and interaction at multiple levels

- Regional and national
- Institutional
- Individual
LA Referencia

- network of open institutional repositories in Latin America
- 100 institutions in 9 countries
- aims to share and give visibility to scientific production in the region
- 850K+ total documents
- 410K+ articles
- 310K+ Master’s theses
- 120K+ PhD dissertations

lareferencia.redclara.net/rfr/
• network of open access repositories in Mexico

• 78 repositories from 39 institutions of higher education

• goals: integrate, disseminate, preserve and give visibility to the academic and scientific production in the country

• 230K+ documents, including articles, theses, and books

www.remeri.org.mx/portal/index.html
Redalyc

“Science that is not seen does not exist”

- created by the Autonomous University of the State of Mexico in 2003
- open portal for scientific journals from Latin America, the Caribbean, Spain, and Portugal
- generates bibliometric and usage data for evaluation
- 900+ scientific journals
- 27K+ issues
- 350K+ full text articles
- involved in creation of national open access initiative

www.redalyc.org/home.oa
Mexico’s new open access initiative

- presented by Senator Ana Lilia Herrera Anzaldo
- in consultation with researchers at Mexican institutions
- approved unanimously by Congress, signed into law by president May 2014
- discusses benefits of open access to society
- encourages all researchers receiving public funds to make work openly available
- will create a national open access repository overseen by CONACyT

Photo: via @Redalyc on Twitter

legislandoatufavor.com.mx
Mexican universities with open access mandates

Universidad Autónoma del Estado de México

Universidad Autónoma de Nuevo León
The good news:

We are making progress on open access at the regional, national, and institutional levels.

The bad news...
Many academics do not have access to literature they need

Photo: Mauricio Fino via Flickr
“Frankly, I am unclear what the public access challenge is. Who does not have access? I am not at a large university. I have always been able to get papers I needed over the years.”

Dr. Gordon L. Nelson
President of the Council of Scientific Society Presidents

Interview with Scholarly Kitchen, Aug. 25, 2014.
Some institutions in Mexico have insufficient access

The National Institute of Public Health is a federal research institute.

≈300 researchers, ≈700 students

Access at INSP:
• **139** journals in total accessible via institute
• **88** journals in total with electronic access
• **66** journals with electronic access via paid subscriptions
• **22** journals with free electronic access provided by publisher
• **51** print-only journals (e.g. Cell, Nature, Science)
• access to select journals through consortium (CONRiCyT)

Thanks to Edgar Aguilar Vera at INSP for info.
High costs of subscriptions are prohibitive

Researchers in the institute study Chagas’ disease, cholera, dengue, HIV, influenza, malaria, tuberculosis...

INSP does NOT have access to:

- Annual Reviews of Medicine
- Current Biology
- Nature Medicine
- Nature Immunology
- PNAS
- ...and MANY more

What is the limiting factor? COST.

Photos: Erwin Huebner (top); Jamas Gathany (middle); C. Goldsmith (bottom) via Wikimedia Commons
Lack of access is a global problem

Open Access Button openaccessbutton.org - New launch coming Oct. 21st!
What can I do as an individual researcher to improve access?
My pledge to be open

- I will not edit, review, or work for closed access journals.
- I will blog my work and post preprints, when possible.
- I will publish only in open access journals.
- I will not publish in Cell, Nature, or Science.
- I will pull my name off a paper if coauthors refuse to be open.

If I am going to 'make it' in science, it has to be on terms I can live with.
Concerns of early-career researchers

If I publish in OA journals:

- I will be hiding my work away in less visible (low prestige) journals.
- I must relegate my work to low impact (low IF) journals.
- Peer review will be of low quality.
- I will not get a job/grant/tenure.
- It will cost too much.
Myth 1: Less visibility and prestige
Be open, get more citations

Wagner (2010), Issues in Science and Technology

Gentil-Beccot, Mele, Brooks (2009), arXiv:0906.5418

Adapted from Piwowar & Vision (2013), PeerJ 1:e175
What kind of visibility will your data bring you?
Should we make data open? YES.

How do we encourage sharing?

- educate researchers (e.g. show them citation advantage)
- have clear policies on citation of primary data
- recognize data sharing in tenure and promotion
- provide financial support for data preparation
- develop infrastructure for data deposit and storage

Image: Ainsley Seago doi:10.1371/journal.pbio.1001779.g001

More ideas: Roche et al. (2014). doi:10.1371/journal.pbio.1001779
Myth 2: I have to publish in low Impact Factor journals.
Don’t worship the Impact Factor!

Image: John R. McKiernan

More info: occamstypewriter.org/scurry/2012/08/13/sick-of-impact-factors/
But if Impact Factor is an issue...

- Cell Reports: IF 7.2
- Frontiers: IF 2.2-4.2
- BMC Medicine: IF 7.3
- PLOS Medicine: IF 14.0
- BMC Biology: IF 7.4
- Genome Biology: IF 10.5
- Nature Communications: IF 10.7
- Scientific Reports: IF 5.1
- PLOS Biology: IF 11.8
- Neuron: IF 4.4
List of OA journals with Impact Factors
Myth 3: Peer review at OA journals is poor quality.
Myth of poor peer review

- Retraction rate is highest in high IF subscription journals
- No controlled study comparing peer review in subscription vs. OA journals
- Bohannon ‘sting’ did not look at peer review in subscription journals
- Bohannon ‘sting’ found reputable OA publishers rejected spoof paper
- Peer review is often transparent in OA journals

Effects of manipulating slowpoke calcium-dependent potassium channel expression on rhythmic locomotor activity in *Drosophila* larvae

Erin C. McKiernan

PubMed ID: 23538395

You can read the full peer review history – every criticism, every change.
OA journals offering open peer review

BioMed Central
The Open Access Publisher

(medical journals only)

PeerJ

(GIGA)\textsuperscript{n} SCIENCE

F1000Research
AN OPEN SCIENCE JOURNAL FOR LIFE SCIENTISTS
Myth 4: I won’t get a job, grants, or tenure.
Hiring, tenure, and promotion...is tide changing?

Over 500 organizations and 12,000 individuals have signed DORA, pledging:

- **not** to consider journal-based metrics (JIF) in hiring, promotion, or funding decisions
- the content of a paper will be weighed more heavily in evaluations than the journal in which it was published
- to consider the value and impact of all research outputs

Signers include at least 25 individuals from Pitt!
Institutions valuing open access, open data

“VCU Promotion and tenure committees should recognize that publication...[in open access formats] offers added value and greater public good”

www.facultysenate.vcu.edu/2010/11/17/vcu-faculty-senate-resolution-1/

“Open access to research data benefits society...Value inheres in data as a standalone research output”

openaccess.unt.edu/denton-declaration
Funders with open access or public access mandates

- National Institutes of Health
- Wellcome Trust
- HHMI Howard Hughes Medical Institute
- Research Councils UK
- The World Bank
Use SHERPA/JULIET to search funder policies

<table>
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<tr>
<th>Funding Organisation (linked to their JULIET summary)</th>
<th>Publications Policy Open Access Publishing</th>
<th>Open Access Archiving</th>
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- Whether to archive articles: deposit required
- What to archive: full final version of article
- When to archive: when accepted for publication (or subject to embargoes)
- Data archiving is required
- Data must be deposited with 5 years
## Funders care about open access and open data

<table>
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<th>Research Funders</th>
<th>Policy Coverage</th>
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Myth 5: OA publishing costs too much.
Being open doesn’t have to break the bank

- Many OA journals do not charge.
- Journals like PeerJ have one-time, low-cost membership fees.
- Many journals have waivers.
- Many institutions have OA publisher memberships.
- Many institutions have OA publishing funds.
- Some funders have started charities to pay for APCs.
- Self-archiving costs nothing.
New funder-run charity to cover OA fees

Charity Open Access Fund

www.wellcome.ac.uk/About-us/Spotlight-issues/Open-access/Charity-open-access-fund/index.htm
Open access doesn’t just mean publishing in OA journals. You can go green!
Self-archiving is a great way to be open

- figshare
- arXiv.org
- bioRxiv

- institutional repositories
- personal website

**Most popular uploads**

- Culture change in academia: Making sharing the new norm.
- Being open as an early career researcher
- Relating ion channel expression, bifurcation structure, and diverse firing patterns in a model of an iden...
- Open access options for publishing neuroscience research
- Mitigating effects of vaccination given constraints in supply and daily administration capacity
- A Brunswikian evolutionary developmental theory of preparedness and plasticity
A genetic manipulation of motor neuron excitability does not alter locomotor output in *Drosophila* larvae

Erin C. McKiernan

**Abstract**

Motor activity, like that producing locomotion, is generated by networks of neurons. At the last output level of these networks are the motor neurons, which send signals to the muscles, causing them to contract. Current research in motor control is focused on finding out how motor neurons contribute to shaping the timing of motor behaviors. Are motor neurons just passive relayers of the signals they receive? Or, do motor neurons shape the signals before passing them on to the muscles, thereby influencing the timing of the behavior? It is now well accepted that motor neurons have active, intrinsic membrane properties - there are ion channels in the cell membrane that allow motor neurons to respond to input in non-linear and diverse ways. However, few direct tests of the role of motor neuron intrinsic properties in shaping motor behavior have been carried out, and many questions remain about the role of specific ion channel genes in...
figshare allows you to upload more than just papers
Your institutional repository is a great way to go green!
Know your rights - don’t sign them away

Know your Author Rights

What you should know when publishing your intellectual property

NEGOTIATE
You have the right to change your publication agreement!

NATIONAL GRANTS
If you have conducted your research using a national grant, you may be REQUIRED to make it publicly accessible.

LOCAL REPOSITORIES
FAIR USE allows you to place your work in a library repository under certain restrictions.

ADDENDUM
The easiest way to alter an agreement is by attaching a standardized addendum like the one from SPARC.

CHOOSE WISELY
You can choose to publish in a journal that supports OPEN ACCESS or SELF ARCHIVING.

For More Information:

SHERPA/ROMEO
www.sherpa.ac.uk/romeo

PLOS
www.plos.org/about/open-access

SPARC
www.arl.org/sparc

Via openaccess.commons.gc.cuny.edu/2014/03/07/you-know-what-you-write-but-do-you-know-your-rights/

AUTHOR RIGHTS

Use the SPARC Author Addendum to secure your rights as the author of a journal article

SPARC
http://www.arl.org/sparc/
What it really means to publish openly

- More exposure for your work
- Practitioners can apply your findings
- Higher citation rates
- Your research can influence policy
- The public can access your findings
- Compliant with grant rules
- Taxpayers get value for money
- Researchers in developing countries can see your work

CC-BY Danny Kingsley & Sarah Brown
My advice to ECRs

- Make a list of OA journals in your field - know your options

- Directory of Open Access Journals doaj.org can help

- Discuss open access, preprints, self-archiving upfront with collaborators

- Blog about your science - write so those outside your field can understand

- Be active on social media to increase visibility

- Document your altmetrics (Impact Story)
Show your real impact with altmetrics

Researcher in experimental and computational neuroscience.

Selected works

- Relating ion channel expression, bifurcation structure, and diverse firing patterns in a model of an identified motor neuron (2012) figshare.
  - Highly discussed
  - Highly viewed +1
  - Highly discussed +1139

  - Highly viewed
  - Highly discussed +5518
  - Discussed

Key profile metrics

- 184.9k impressions on 12 articles
- 784 views on 12 articles
- 648k impressions on 4 slide decks
- 103.1k impressions on 3 datasets
Discussing OA with your mentor

- Ask your mentor for a meeting to discuss publishing options
- Put together concise (15 mins max) presentation on benefits of OA
- Include data (lack of access worldwide, advancements made through open science, citation advantage)
- Explain how your work and the lab could benefit from being open
- Create a list of OA options and share this list with your mentor
- If your mentor insists on a toll access journal, discuss submitting an author addendum
- Start these discussions EARLY!!

From interview with ARCSCon at arcscon.tumblr.com/post/84942060277/advocating-for-openness
How to support ECRs in being open

- LISTEN! LISTEN! LISTEN!
- Lead by example - be open and others will see benefits
- Be receptive - answer emails, tweets, questions from ECRs about OA
- Say yes to giving tutorials, guest lectures, talks at meetings
- Do not consider where people publish in making hiring, grant, or tenure decisions
- Write open access publishing funds into your grants
- Create incentives for being open

Photo: listentomyvoice via flickr
Empowering ECRs to advocate for change

More info: opencon2014.org
OpenCon 2014 satellite events

Bring OpenCon to you. Host a satellite event!

More info: opencon2014.org/satellite
In sum…Don’t lock up your research!

Image: John R. McKiernan
Take-home messages

• There does not have to be a conflict between being open and being successful.

• Being open does not have to hurt your career - it can help it!

• At any stage of your career, you have the right to stand up for your beliefs.

• If you believe in openness, stand up for it. Make it happen.

• Opening up academia starts with you and the choices you make.
These are some of the people you will help...Thank you!

Students in Puerto Rico

Students and researchers in Mexico