

# Growing capacity : Designing an open science information literacy session

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# Overview

- What is open science
- McGill's MIST practicum structure
- State of existing IL practices/workshops in Canada
- Workshop “*Open Methods: Transparency in the Research Process*”
- Reflection on the practicum

What is open science? And why libraries?

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"a collection of actions designed to make  
**scientific processes more transparent  
and results more accessible "**  
*[emphasis added]*

(Spellman, B., Gilbert, E. A., & Corker, K. S., 2018)

# Note on the term open science

Also known as:

- Open research
- Open scholarship

These practices aren't limited to science!

# What comprises open science?



Image credit: Gallagher et al. (2019).

# Trends in open science

nature

Explore content ▾ About the journal ▾

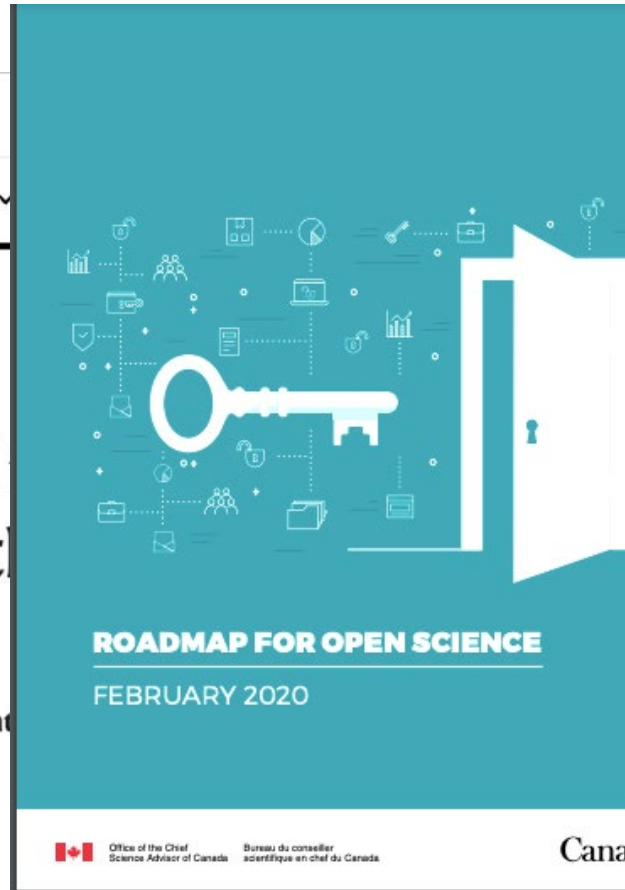
[nature](#) > [world view](#) > [article](#)

WORLD VIEW | 11 January 2023

## Why NASA and declaring this t Science



Here's how NASA is incent



# Why open research and libraries?

- Libraries historically leaders in other ‘open areas’:
  - Open access
  - Open education resources (OERs)
  - Open data and research data management
- Growth of “digital scholarship” in libraries
  - Positioning of libraries as campus research skills hubs



# Open Science library service website example: Carnegie Mellon

Carnegie Mellon University  
Libraries

FIND

BORROW & REQUEST

SERVICES

VISIT

ABOUT

EVENTS

MY ACCOUNT

ASK US

## Open Science & Data Collaborations



Open Science & Data Collaborations (OSDC) is a University Libraries program supporting collaborative, transparent, openly accessible, and reproducible research across all disciplines at Carnegie Mellon University. We recognize that having well documented and automated research workflows, code, and datasets is essential to making research more interdisciplinary, efficient, and reusable as well as allowing researchers to leverage data science techniques.



Tools



Trainings



Events



Collaboration



Assessment

# Open science university website example: University of Mannheim



Universität Mannheim ■ Open Science ■ Open Science Office

## Open Science Office

The Open Science Office of the University of Mannheim was established in February 2021. It is linked to the University Library and is a point of contact for everything related to Open Science.

# Is there a place for this at McGill?



McGill

Fiat Lux Library Project  
Projet de la bibliothèque Fiat Lux

Home

About the project

Feedback

News

Team

Collections Centre

Giving

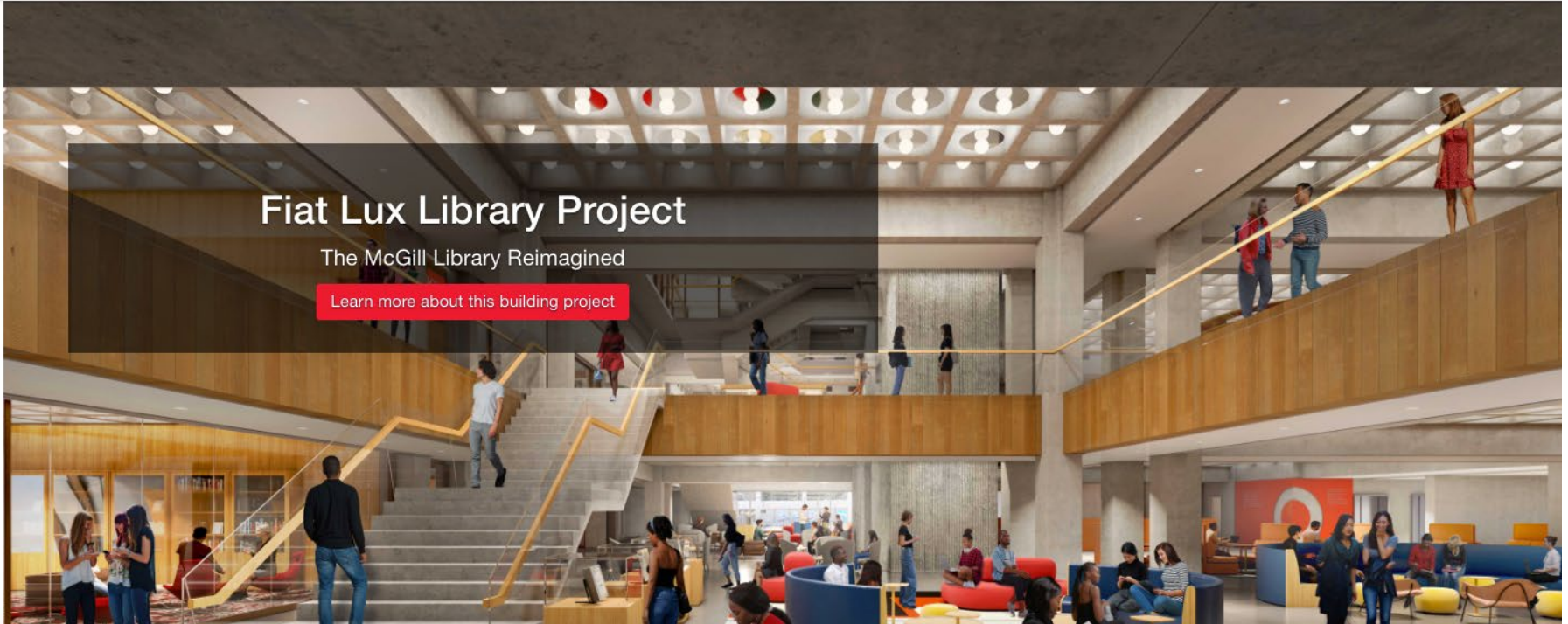
Contact us

Eng

## Fiat Lux Library Project

The McGill Library Reimagined

Learn more about this building project



# Open science and the ACRL Framework

## Information creation as a process

- Reframing information creation and dissemination processes
  - Focus on transparency and openness

# Open science and the ACRL Framework: cont'd

## Scholarship as conversation

- Critical reflection on changing research landscape
  - Why was 'closed' the default historically?
  - Who was excluded?
  - How does the 'open' environment influence/adjust the conversation?

# Open science and the ACRL Framework, cont'd

## Information has value

- Role of open licensing
- Challenges to existing notions of intellectual property
- Who benefits from a 'closed' research ecosystem?

So libraries + open research  
But what next?



# McGill Library context

Have offerings primarily related to:

- Open access
  - *Preprints: What, why, how*
  - *How to make your work open access: Psst it doesn't have to cost money*
  - *Choosing a Creative Commons license*
- Open data
  - *Making your data open access*



# McGill Library context: cont'd

Also have [McGill Open Research subject guide](#)

But no sense of broader picture + other open research areas

Curious to know what other Canadian libraries were doing

# MIS<sub>t</sub> practicum on open research

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# MISSt Practicum

- 3-credit, elective course for 2nd-year Master of Information Studies students.
- 100 hours
  - 12 weeks  $\approx$  8 hours/week
- Sites develop practicum proposals which students apply to
  - [McGill MISSt Practicum description](#)

# Our proposal:

## 3 deliverables:

- Lit review of current open research practices in libraries
- Website analysis of Canadian academic libraries and their open research offerings
- Development of a workshop based on an open research topic

## Note:

Didn't require knowledge in scholarly communications

- Two weeks spent on background reading.

Practicum also included job shadowing.

What did we find?

# Lit Review Scope

- “Open” services/initiatives in academic libraries
- A global scope to analyze case studies and implementations of open research

## Lit review summary

- Providing open access and open data services are a common global concern that is being prioritized
- Issues in outreach and engaging with scholars
  - Attendance and participation for open research services and practices are low

## Lit review summary cont'd

- Notable institutional initiatives:
  - University of California cancelling their \$50 million journal subscription deal with Elsevier
  - University College London Press: UK's first fully open access university press
  - University of Massachusetts Amherst Library's 2.5% commitment: "2.5% of the collection budgets should be devoted to an open scholarly commons" (David Lewis cited in. Turner & Billings, 2019, p. 200)



# Website analysis: Method

Main question: Are any of the following present?

- open research, open science, open scholarship, open methods, open access, open data, and open educational resources (OER)

## Website analysis: Method cont'd

- Scope limited to CARL academic libraries, excluding national libraries (29 libraries total)
- Only library-related webpages are analyzed.
- Search strategy:
  - Use subject guides (if available) as a starting point
  - Use internal search features of webpages and/or “ctrl+F” to find mentions of keywords
  - Browse library’s workshop calendar main service menu, and blogs
  - If we were to go back, would add strategic plans

[Online data collection form for website analysis](#)

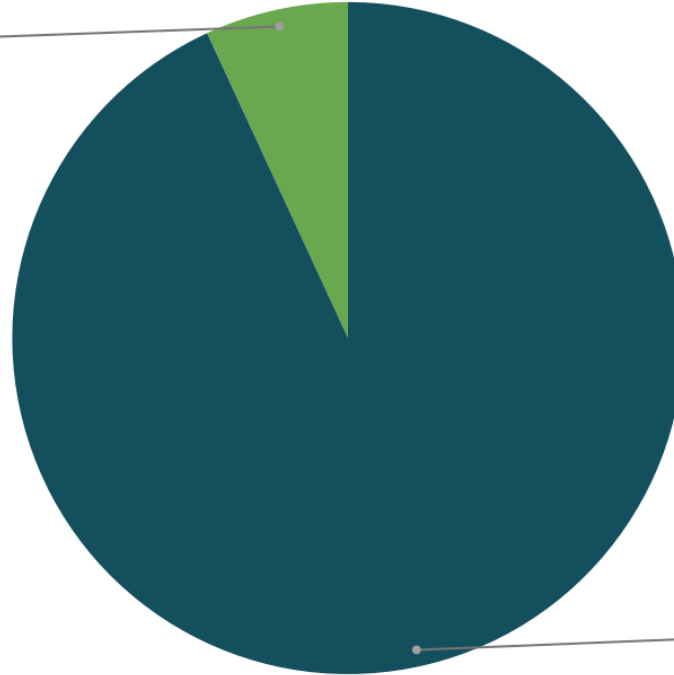
## Website analysis: Basic summary

- In all institutions, open access and open data services were present
  - Most common: open access publishing information and data repositories
- Most libraries (27 out of 29) had open educational resources services
  - Resources to find free/open textbooks, materials needed for teaching, lesson plans, etc...

# Website analysis: OER Services are present

OER

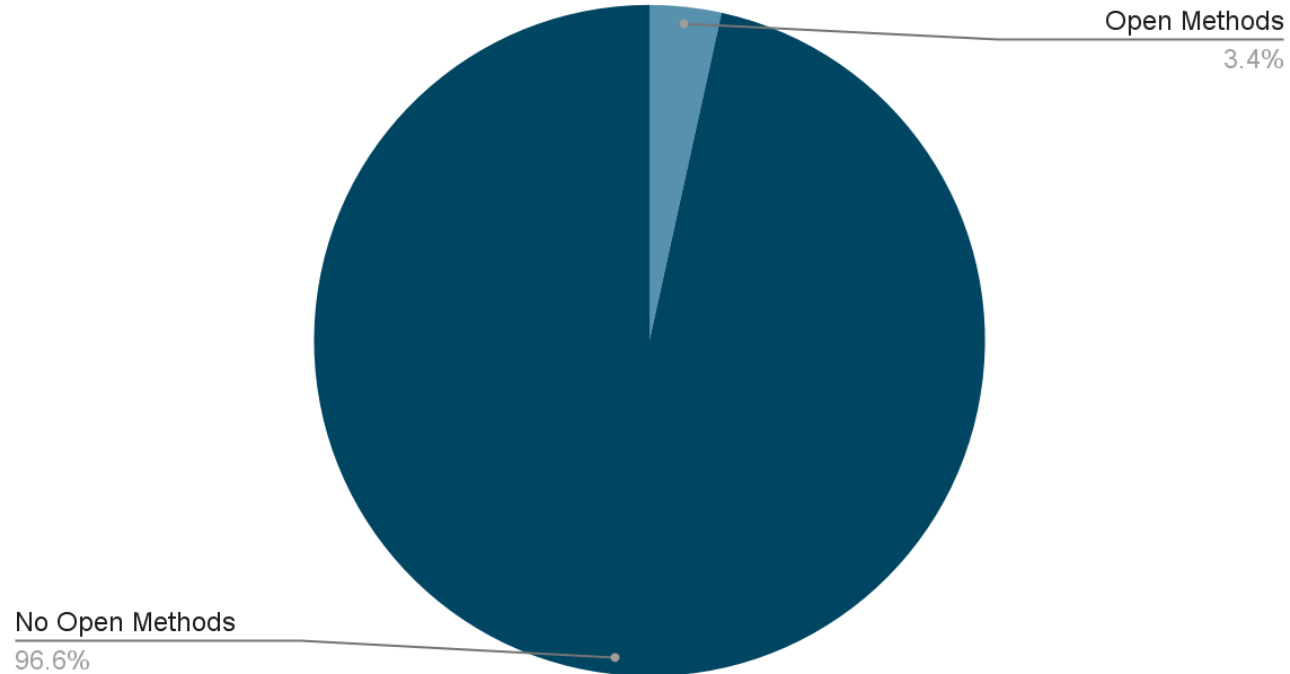
No OER  
6.9%



OER  
93.1%

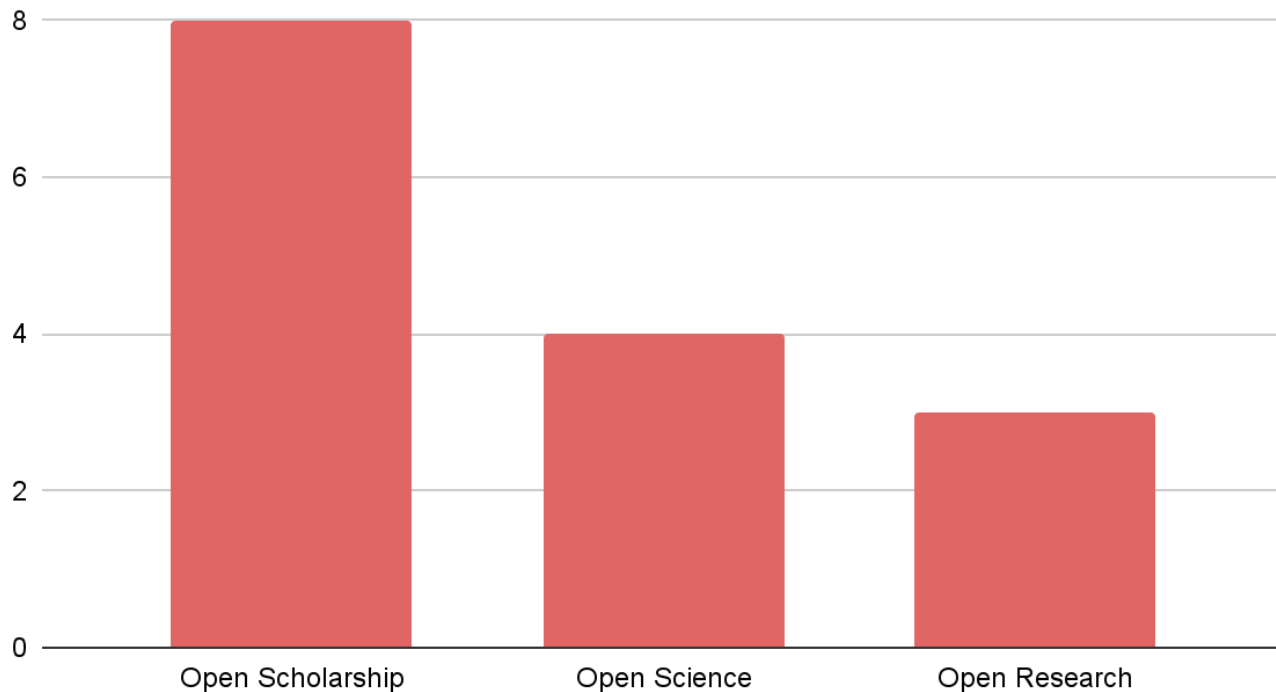
# Website analysis: Open Methods are present

Open Methods



# Website analysis: “Open” terms used on library sites

Usage of Broad "Open" Terms



# Website analysis: Other observations

- 7 institutions indicated that they had a specialized or dedicated librarian specifically for Open projects

# Website analysis: Workshops

- 12 institutions had an “open” workshop listed
- Primarily associated with open access and open data
- Sometimes general terms (e.g. open scholarship) are used, but content centers on open access



# Website analysis: Workshop Examples

- *Open Everything! A Panel on the Whats, Hows, and Ifs of Open Scholarship*  
McMaster University
- *Creative Commons and Copyleft Trolls*– University of British Columbia
- *How to make your research more open and accessible*– University of Saskatchewan
- *Open Access and Open Scholarship*– Simon Fraser University
- *Open Scholarship Series*– University of Guelph
- *An Introduction to Open Data*– Toronto Metropolitan University

# Creating an open research workshop

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# Open research workshop

*Open Methods: Transparency in the Research Process*

30 min.

- Open Methods: the least mentioned open research subcategory
- Supports open practices throughout the whole process

# Workshop Description:

*Open methods are an emerging practice to improve the transparency and reproducibility of research. This workshop will describe how to pre-register a study as well as outline what registered reports are.*

*At the end of the workshop, participants will be able to:*

- *Describe the benefits of pre-registering a study with a research plan.*
- *Identify how a registered report differs from a regular publication.*
- *Understand how pre-registered studies and registered reports improve the research process.*

# Workshop

- Highlights issues in traditional research and publication process
- Introduces pre-registration and registered reports of papers as two open methods practices
- Compares and contrasts the processes of pre-registration and registered reports to the traditional process
- Demonstrates the steps a researcher can take by walking through relevant websites
- Addresses potential benefits and challenges of using open methods

# Self-reflection: What I learned while creating the workshop

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# Connecting Workshop to ACRL Frameworks

## **“Information Creation as a Process”**

- Directs audience to sources that helped in the workshop’s information creation
- The format of the workshop delivery (virtual powerpoint) allows me to visually emphasize

# Connecting Workshop to ACRL Frameworks cont'd

## **“Scholarship as Conversation”**

- Open methods is an important topic of conversation in scholarship, and I highlight its place in comparison to the traditional research process



# Connecting Workshop to ACRL Frameworks cont'd

## **“Information Has Value”**

- Indicate when I am referring to other sources
- When relevant, I showcase and walks through the online sources where cited information comes from

# Workshop Demo

## What is Open Methods?

- Open = transparency and sharing of research for access and reuse
- Methods = processes, procedures and materials used in a research investigation

# Why Open Methods

- Improves the transparency and reproducibility of research
- Requires scholars to register their research plan before conducting the research
- Avoids biases in human reasoning

# Traditional Publication Process



IDEAS ARE  
GENERATED



GENERATE A  
HYPOTHESIS OR  
THEORY



COLLECT &  
ANALYZE DATA



WRITE PAPER



PEER REVIEW



REVISE & PUBLISH

# Pre-Registration Process



Ideas are generated



Generate a hypothesis  
or theory



Design study and  
analysis plan



Post design and plan to  
an independent registry



Data collection and  
analysis according to  
design and analysis  
plan



Write paper



Peer Review



Revise & Publish

# Registered Reports Process



Ideas are generated



Generate a hypothesis  
or theory



Write partial paper with  
design study and  
analysis plan



Submit to journal &  
receive "Principle  
Acceptance"



First Peer Review



Data collection and  
analysis according to  
design and analysis  
plan



Write paper



Second Peer Review



Revise & Publish

Key take aways

## What we learned (site supervisors)

- Where McGill fit in terms of the Canadian landscape
- What are registered reports/registering a study
- What are the gaps:
  - Open methods
  - Open peer review
  - Open source
  - Citizen science
- It was fun to show a student our jobs!



## What we learned (practicum student)

- Role of librarians in open research services and education
- Proper research data collection and organizational practices
- Creating and presenting a virtual library workshop using learning outcomes
  - 23 participants attended!
  - *“I really enjoyed the discussion of why some researchers may be resistant to open methods. By mentioning and dealing with the downsides I think it is more likely researchers will try out open methods, as it is being presented as a potentially beneficial alternative rather than a forced paradigm change.”*

Questions?

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