Open Notebook research

Open notebook research?

'Open notebook science is the practice of making the entire primary record of a research project publicly available online as it is recorded. This involves placing the personal, or laboratory, notebook of the researcher online along with all raw and processed data, and any associated material, as this material is generated.'
- https://en.wikipedia.org/wiki/Open_notebook_science.

Examples

- Caleb McDaniel
- Carl Boettiger
- Paper based notebook
- https://notebook.andrewheiss.com/project/diss-ingos-in-autocracies/survey-completion-rates/

More than a blog?

- Documentation
- Data sharing
- Code sharing
- Help facilitate citizen science
- Can be integrated into existing research processes

Disciplinary differences in approach

- What is your 'data'

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- How do you work?

Disciplinary differences in approach

- What is your 'data'
- How do you work?
- Teams or individual projects?

How open?

- You don't have to share everything

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- Consider what is useful for others

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- You don't have to share everything
- Consider what is useful for others
- The intention to be open could help improve your research practices

Components of an open notebook

- Depends on the project

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- Depends on the project
- Depends on the aims behind your notebook
- Reproducibility, citizen Science, collaboration tool?

Using open notebooks to facilitate more open research

- Open notebooks could be a good starting point for helping carry out more open research

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- Help with data sharing best practices

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- Documentation
- Facilitate collaboration

Pre-registration

'Preregistration of an analysis plan is committing to analytic steps without advance knowledge of the research outcomes. That commitment is usually accomplished by posting the analysis plan to an independent registry such as http://clinicaltrials.gov/ or http://osf.io/. The registry preserves the preregistration and makes it discoverable, sometimes after an embargo period. With preregistration, prediction is achieved because selection of tests is not influenced by the observed data, and all conducted tests are knowable. The analysis plan provides constraint to specify how the data will be used to confront the research questions.' - https://dx.doi.org/10.17605/OSF.IO/2DXU5

Preparing to share?

■ Organization

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- Organization
- Metadata

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Preparing to share?

- Organization
- Metadata
- Documentation
- File formats

Documentation

For your notebook

- What is your notebook for?

For your teams

- Outline protocols
- Record progress
- Data Management Plan

For other people

- Explain your research process
- Develop guidance on using your data or code

Licensing

A license tells other people what they can do without having to ask you.

Licensing publication

- Often defined by journal policies
- Your funder may require a particular license

Licensing data

- Do you have copyright over your data?
- Use a standard license e.g. Creative Commons
- Community standards Pollar Commons

Licensing software

- Choose an existing license
- Does your software reuse code?

Version control

Use some type of version control system for your data, code and other documentation.

Manual approaches

- Systems for file naming e.g. 2017-10-07-documentation

Automated version control

- GitHub
- Open notebooks
- Electronic lab notebooks

Attribution

- Make your material citable
- Cite software, code and data you use

Dissemination

- Use a persistent identifier (DOI)
- Cite data, software and other materials in publication

Open Science Framework

The Open Science Framework is a project of the Centre for Open Science with funding from a wide range of funders. The Open Science Framework aims to make Open Science easier for researchers by providing a platform for hosting, documentation, data, notebooks and linking to a range of other tools.

Setting up a notebook