AN OPEN RESEARCH JOURNEY: CHANGING SHARING CULTURE AT THE UNIVERSITY OF READING

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CISPC 2019
TODAY’S TALK

- How and why our Open Research initiative arose
- Our development and engagement activities
- What has changed at the University over this time
- Where we are now and where we go from here
UNIVERSITY OF READING

- Founded 1892, Royal Charter 1926, only University to receive this between the two World Wars
- 17,000 students (1,000 PhDs)
- 930 academic staff; 230 contract research staff (PDRAs etc.)

Four Research Themes:
- Agriculture, Food and Health
- Environment
- Heritage & Creativity
- Prosperity & Resilience

Research strengths: Meteorology, Agriculture, Food Science, Psychology and Neuroscience, Architecture and Built Environment, Typography
KEY PLAYERS

• Phil Newton: Research Dean for Environment, Chair of OA and RDM steering groups (Open Research champion)

• Alison Sutton: Research Engagement Manager (OA and publications repository)

• Karen Rowlett: Research Publications Adviser (OA, publications, bibliometrics)

• Robert Darby: Research Data Manager
DRIVERS 2016-2017

We were not open!
• REF-driven OA compliance was high, but no evidence of broad willingness to adopt open practices
  • Low adoption of OA publication routes unless mandated
  • Low rates of data sharing
  • 2017 research software survey: widespread poor practice in research programming and code sharing

Support not integrated
• OA and RDM support functions separate – split between Library and Research Services

Compliance did not create positive incentives
• Wanted to change the conversation to focus on positive reasons to be open – and practical possibilities and benefits for the individual researcher
• Open Science/Open Research discourse was at this time becoming more mainstream and provided a unifying theme for us
OPEN ACCESS PUBLISHING

- Uptake of OA was focused on compliance rather than a positive choice or viewed as a potential benefit
- Fully open access journals often viewed with suspicion
- Concerns about who would meet costs of gold OA
- Authors failing to deposit a full text in the CentAUR institutional repository despite being allowed to by publishers
- Authors turning down OA when it would be available easily under deals with publishers
ENCRUAGING OA UPTAKE

• Trying to encourage OA as the default position – gold or green
• Establishment of gold OA fund in 2016 for staff and students without funding
• Publicising deals with publishers that make OA easier and cheaper
• Streamlining application form and payment processes
• Training and information on how to avoid less reputable publishers
• Showing benefits in terms of downloads and possible increases in citations/Altmetric scores
OA MONOGRAPH FUND

- Established in August 2017
- Recognition that funding journal articles only did not serve our diverse range of researchers
- Seen as a way of balancing out OA funding across the university
- Part of move to get researchers to think as OA as the default position for all outputs
- Covers whole monographs and book chapters
- Anticipated direction of the next REF exercise
CELEBRATING SUCCESSES

- Charts in CentAUR
- Twitter cards
- Infographics
- Milestones project

CentAUR

Key Stats: August 2019

- 61,645 Page views of CentAUR
- 57 Items downloaded over 50 times
- 12,915 Visitors to CentAUR
- 521 Items added to CentAUR
- 45,301 Items in CentAUR
- 279 University of Reading staff deposited items

CentAUR repository @Uniridg_CentAUR - Oct 22
Top newcomer to @Uniridg_CentAUR for Sept was on WHO draft guidelines on dietary saturated and trans fatty acids. Published #OA but also downloaded >30 times from CentAUR (>2000 from publisher site) centaur.reading.ac.uk/84706/ doi.org/10.1136/bmjj4... #OWeek19

WHO draft guidelines on dietary saturated and trans fatty acids time for... The 2018 WHO draft guidance on fatty acids fails to consider the importance of the food matrix, argue Arne Astrup and colleagues... bmj.com
DATA SHARING – VIEW FROM HERE

- Weak policy drivers from funders and research organisations

- Awareness of data sharing requirements and services is low

- Difficult to get messages through to researchers

- Sub-optimal practice is widespread

- Lack of interest/hostility to the open agenda

RC-funded articles, first author at Reading, supporting primary data, May 2015-May 2017 (n=237)
Open in Practice 2017

- Full-day conference

- External speakers (academics, publishers, data services) on reproducibility, OA, digital humanities, data sharing, open peer review, preprints

- 90 attendees:
  - 50 research-active (staff, some PhD students)
  - External guests, professional services, senior management

- Outcomes
  - Started the conversation
  - Engaged senior management
  - Kicked off follow-on activities
OPEN RESEARCH STATEMENT

• Championed by Research Dean and developed following Open in Practice

• Broadcast clear commitment to the principles of Open Research

• Tie together existing open policies (OA and publications, research data)

• Inform strategic, co-ordinated policy and service development

• Inspire researchers with positive examples of benefits and possibilities
CONSULTATION – SPRING 2018

• Consultation survey sent to research-active staff and PGRs – approx. 2,100 people

• 55 responses

• Most respondents supportive in principle – but in practice?
  • Apart from policy-dictated OA and data (up to a - relatively low - point), evidence of Open Research activities very patchy

• Misconceptions and negative perceptions
  • ‘Not relevant to Arts and Humanities’
  • ‘Preprints undermine peer review’
  • ‘Motherhood and apple pie!’
  • ‘More box-ticking for academics’

• Purpose of Statement unclear
  • ‘Is it a policy?... What am I supposed to do?... What if I don’t do it? ’
  • ‘Will there be more resources and support?’
University of Reading Statement on Open Research

This statement sets out the University’s commitment to the aims and principles of Open Research. We explain what it is and why it is important. We encourage our research community to explore the possibilities and benefits of using open practices in their research, to discuss their needs with us and to draw on the available support. On this page you will also find links to useful guidance and resources for researchers relating to Open Research.

The University of Reading will increase the quality, integrity and accessibility of our research by supporting a growing culture and practice of Open Research. We will use modern technologies and practices of scholarship to improve access to research, transparency in the research process, and reproducibility of results, and to promote efficient methods of scholarly communication.

Open practices can increase the integrity, quality and productivity of our research, and bring benefits to individual researchers in terms of academic reputation and career opportunities for collaboration, and the generation of impact.

Research conducted on open principles is more collaborative, transparent and reproducible, and makes its outputs more accessible to a greater number of people. This best serves the University’s mission to disseminate knowledge for maximum public benefit.

These benefits are being more widely recognised in the policies of research funders, research organisations and publishers, and within the cultures and practices of research communities. The academic system is evolving towards greater openness, and we have a role to continue to support that process in making research more transparent and accessible.

“Open data and content can be freely used, modified and shared by anyone for any purpose.”

The Open Definition
https://opendumion.org

USEFUL LINKS
- 12 things you can do to be open
- Further information on Open Research
- Open Access
- Research Data Management
- Download PDF of our Statement on Open Research
- Open Research case studies

https://tinyurl.com/uor-openresearch
12 things you can do to be open

Here are 12 things you, as a researcher, can do to be more open. Some will be applicable to all research, others are possibilities which might be relevant to some disciplines and contexts more than others.

Explore the possibilities; be as open as you can be, and as closed you need to be. The University’s publications and research data support teams are here to help you tackle any or all of these. Please contact us if you need support or would like more information.

General tips for good practice which are likely to be required by research organisations, funders and publishers:

1. Make your research publications Open Access. This can be done either via the publisher (Gold Open Access) or through deposit in CensAUR, the University’s publications repository (Green Open Access), under a suitable open licence. Monographs as well as articles can be published by Open Access means.

2. Make it FAIR. If you collect or create primary data that support your research findings, make them FAIR (Findable, Accessible, Interoperable and Re-usable) by depositing them in a data repository under an open licence, in usable formats and with appropriate documentation and metadata, and cite the data using the DOI or other unique identifier in your publications.

3. Release your code. If you create research software or write code to perform data analysis, preserve and release the (commented, documented) code under an open licence using a data repository or code repository platform (e.g. the University’s GitLab or GitHub), and cite the code in your publications, by version and using a DOI or other unique identifier where possible.

4. Archive web resources for long-term preservation and use. If you create an open web resource, such as an online database or a digital collection, implement it using open standards (e.g. following Text Encoding Initiative Guidelines) and sustainable infrastructure to optimise its usability, and archive the content and resource documentation to a suitable data repository for long-term preservation.

Opportunities to make your practice more open, not all of which will be appropriate to all disciplines and contexts:

https://tinyurl.com/uor-12things
Open in Practice 2019

- UoR researchers showcasing their Open Research
- Open Research Award competition
- 90 attendees (again)
  - 45 research-active
  - Professional services and senior management
- Outcomes
  - Disappointing turnout
  - ‘Preaching to the converted’
  - Too broad and long – shorter more focused workshops better

https://tinyurl.com/uoropen2019
OPEN RESEARCH AWARD 2019

• Run in parallel with lead-up to Open in Practice

• Researchers and PhD students invited to submit individual or team Open Research case studies

• Cash prize for the winner!

• Shortlist offered publication as Open Research case study

• Shortlist presented case studies in lightning talks session at Open in Practice with live voting to select winner

• Good level of interest – 17 entries, at least half of high quality

• Will run competition again – possibly on a biennial basis

https://tinyurl.com/uor-openaward
In these case studies, researchers at the University of Reading explain how they have used open practices to carry out and communicate their research, and explore the benefits and challenges of being open.

https://tinyurl.com/uor-casestudies
OPEN RESEARCH CASE STUDY

Rescarching Solar Storms With Citizen Scientists: Engaging With Four Thousand Volunteer Research Assistants

Professor Chris Scott, Dr Luke Barnard and PhD student Shannon Jones have been collaborating with a global community of thousands of citizen scientists using the Zooniverse platform, conducting open research about solar storms as they travel through interplanetary space.

Coronal mass ejections (CMEs), or solar storms, are eruptions of plasma and magnetic field from the Sun’s corona. At Earth, a CME can disrupt modern technologies such as satellites, power grids and high-altitude aircraft. In order to accurately predict their arrival at Earth, it is essential that we learn as much as we can about the nature and evolution of CMEs.

Why citizen science?

In 2006 NASA launched the twin STEREO spacecraft, whose cameras returned a huge number of images revealing the complex environment of CMEs. Experts noted it was time to study more than a handful of such events, as manually combing through these data is very time-consuming, while automated algorithms still lack the accuracy to identify, classify CMEs. The Solar Stormwatch citizen science project, which ran on the Zooniverse citizen science platform from 2011 to 2018, was developed to address this issue, asking volunteers to help identify and track CMEs. This was very successful, with over 14,000 participants enabling us to build the world’s first citizen science-generated CME catalogue leading to the publication of over 100 scientific papers.

These projects have provided a fantastic opportunity to engage with thousands of volunteers whose time and enthusiasm have enabled us to conduct original research that would not otherwise have been possible.

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We have subsequently developed two additional projects, Protect our Planet from Solar Storms, created in collaboration with the Science Museum, and Solar Stormwatch2, both use new techniques that have enabled us to study the detailed structure of CMEs and trace CME storm fronts. Images from STEREO’s heliosphere images (his). These projects encourage users to interact via Task/Forum pages, while blogs are used to keep participants up to date with the research they have helped create.

Citizen science eliminates the subjectivity of a one-expert, using instead the wisdom of the crowd. For example, we combine features identified by 30 participants in each CME image, allowing us to estimate the location of the storm front with uncertainty estimates.

When creating these projects, one challenge was how to explain the logic clearly to ensure consistency. For example, in-line release tests for Solar Stormwatch1, we found that participants tended to draw around the original storm fronts in each image, rather than the outer, more diffused fronts. The instructions were subsequently altered so that users were asked to trace both the brightest and subsequent storm fronts, which solved the problem.

It is very rewarding to see people actively engaged in our research. We regularly interact with participants, answering questions on the forum. One high-school student from the USA was even motivated to write the first automated algorithm to trace storm fronts from these data. We are now working with her to test the accuracy of her technique. Many participants spot unusual features in the images, which can provide unexpected avenues for future research. In the Protect our Planet from Solar Storms project, many participants have identified dust trails and ghost fronts, which will be used to seed future research projects.

The results of our citizen science projects have been published in peer-reviewed journals. Through open collaboration, our publications are Open Access, the most recent supplements with code and data published online using GitHub and Figshare respectively.

These projects have provided a fantastic opportunity to engage with thousands of volunteers whose time and enthusiasm have enabled us to conduct original research that would not otherwise have been possible.

Open at a glance

- Project develops the first ever citizen science-generated catalogue of Coronal Mass Ejections (CMEs)
- Thousands of people too part in research, making original contributions and being credited in Open Access research articles
- Members of public have developed research methods and started new lines of inquiry for future research
- Data and code are freely available online

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References and further information


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www.reading.ac.uk/research/research-environment/open-research

Composite image showing coronal mass ejection © STEREO/NASA
Open Research Handbook: About Open Research

Getting started with Open Research

This section of the guide provides an introduction to Open Research. We explain what it is, what you have to do and what you can do. We also explain why Open Research is important, and explore some common myths.

About Open Research

What is Open Research?
Open Research is a set of principles and practices whose aim is to make the outputs of research freely accessible and usable, thereby maximising the possibility of public benefit. It has been described as ‘scholarly research that is collaborative, transparent and reproducible whose outputs are publicly available’ (Integrated advice of the Open Science Policy Platform). It is based on the principle that knowledge produces the greatest benefits if it is shared as widely as possible.

Open Research is relevant to all researchers and all disciplines, although the applications will differ according to discipline and research context. There are many different definitions of Open Research, but a number of themes can be identified (not all of which are relevant in all cases):

- making the outputs of research, including publications, data, software and other research materials freely accessible;
- using online tools and services to increase the transparency of research processes and methodologies;
- making scientific research more reproducible by increasing the amount and quality of information placed on the public record;
- using alternative models of publication and peer review to make the dissemination and certification of research faster and more transparent;
- using open collaborative methods to increase efficiency and widen participation in research.

The principles of Open Research are reflected in the policies of many public funders and research organisations that promote greater public access to research, and in evolving models of scholarly communication. Change is also being driven by the needs of academic communities and stakeholders among the general public, in industry, and in the developing world.

https://libguides.reading.ac.uk/open-research
FILLING GAPS WITH CHAMPIONS

- Survey on research programming and software practices undertaken in 2017 identified
  - Widespread poor practice and absence of training, with consequences for research quality and reproducibility
  - Led to discussion with IT about support and training needs, and requirements gathering by IT staff

OUTCOMES

- From Autumn 2019: two IT staff have new role descriptions as Research Software Engineers (RSEs) with a remit to implement support and training services
- Summer 2019: Reproducibility workshops organised by academics in Psychology Department
- Spring 2019: Coding Club established by academics in Psychology
  - Training for students and ECRs in reproducible coding basics, R, Python…
  - Intend to seed other clubs in coding-intensive Schools
EMBEDDING GOOD PRACTICE

• August 2018: Responsible metrics statement agreed
  • Adopts Leiden manifesto principles

• Summer 2019: Working towards Open Research criteria to be included in recruitment, promotion and performance reviews
  • Examples of Open Research can already be added in support of application for promotion to Professor and Associate Professor

• Autumn 2019: Research Data Manager moves from Research Services to Library and new Research Engagement Group established
  • More integrated Open Research support service
WHAT’S CHANGED?

• Open Research has given us a shared language to discuss related needs across the University

• Increased buy-in at senior management level

• Professional services (Library, Research Services, IT) are working more strategically to develop and deliver support to staff and students

• BUT little evidence of significant changes in behaviour at individual researcher level
CHANGE NEEDS TO BE SYSTEMIC

• All stakeholders in the academic reward system need to eliminate perverse incentives (e.g. Impact Factor-driven publication) and create positive drivers

• University sector
  • Embed Open Research in norms for education and training, in standard professional role specifications, assessment policies and procedures, etc.
  • Invest in infrastructure and services: poor-quality, irreproducible research is massively wasteful

• Funders: stronger Open Research policies, better monitoring and sanctions

• Publishers: Open Access reform, stronger data and code transparency policies
THANK YOU

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