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Building a framework for open research skills at the University of York

Background

Open research can be defined broadly as an approach to scholarly research practice in which plans and outputs are made freely available at the point of need for others to access, reuse and reproduce. The principles and underlying methods of open research have been thoroughly explored elsewhere, with commitments and activities in the UK higher education sector led by funders such as UK Research and Innovation (UKRI)[1] and Wellcome,[2] alongside grassroot initiatives such as the UK Reproducibility Network (UKRN).[3] Open research signals a fundamental shift in research practices and culture which has resulted in the formation of new communities of practice and researcher-led networks in certain disciplines. This shift has also necessitated a step change in the types of training and guidance provided by university library research support and scholarly communications teams.

The University of York published its open research statement in summer 2020, praising the values of open research and offering a central commitment to the long-term development of an open research culture in support of our strategic vision as a University for the public good.[4] Strategic guidance for this commitment is provided by the Open Research Strategy Group and enacted in partnership with our communities of practice by the Open Research Operations Group. Both cross-institutional groups include Library, Archives and Learning Services (LALS) staff amongst their members, and our library-based Open Research team have had a key role in delivering on the University's commitments by encouraging practitioners to explore the potential of opening up all stages of their research lifecycle.

An informal survey was launched soon after the publication of the University open research statement, seeking to assess existing levels of awareness and engagement amongst the York research community.[5] The response to this survey was far from comprehensive but provided some insight into different levels of experience across some disciplines and roles. The main barriers to open research practice were identified as lack of training, clarity and understanding, particularly for research support staff, students and respondents from Arts and Humanities in general. A preliminary Open Research Practical Guide was created by our team using Springshare LibGuides in response to recommendations made in the survey. The guide was accompanied by an introductory online training session named 'Open Research Principles and Practice' which we offered through the University's central researcher training programme.

Our York Open Research Advocates network was established in January 2021 to help foster engagement in different areas, and today counts over thirty members from a wide range of roles and across all three academic faculties.[6] The Advocates network was involved in developing and delivering our first York Open Research Awards in May-June 2021, which was followed by another successful round of awards in 2022.[7] These awards schemes have so far recognised a total of 28 projects and initiatives across a variety of disciplines which encourage dialogue, reflection and broader thinking about open research. We have also run numerous discipline-focused open research events which have highlighted a range of research projects and practices, helping to launch discussions between members of our community.[8]

Initiating the project

The task of developing a formalised skills framework was included in the Open Research Operation Group action plan in February 2021 with a proposed deadline to launch by September that year. A scoping session took place online in May, facilitated by colleagues who had previously developed a Staff Digital Skills Framework for the University.[9] During this session the Operations Group discussed the context of open research at York and briefly appraised a selection of existing open research frameworks, programmes, training courses and other resources. The session unfortunately did not lend itself enough time to thoroughly evaluate each example and intended follow-up work was fragmented due to staff changes and other priorities amidst the ongoing Covid pandemic.

Progress was made in early 2022 when LALS secured a share of Research England funding in support of enhancing research culture, which had been offered to all higher education providers in England and recognised 'furthering open research practices' as an area for potential investment.[10] This provided the impetus to recruit a Project Coordinator to join the Open Research team for a period of 12 weeks overseeing the development and delivery of a framework in time for the 2022/23 academic year. The role was advertised through the University's internship service, enabling us to target early career researchers (ECRs) as practitioners with recent experience and an interest in developing further knowledge around open research. We drafted a concept summary document around this time, clearly outlining our intentions for the framework project in a concise format:

This project will…	Create a framework aimed at research staff and Postgraduate Researchers to outline the skills and competencies involved throughout the open research lifecycle and to signpost opportunities for training and support at the University of York and elsewhere.
Resulting in….	A visual model framework with accompanying materials and a communications plan for its implementation and promotion, developed in collaboration with our community of open research practitioners.
Which will…	Serve as an accessible and engaging guide to open research methods, defining the scope of open research practice as it applies across different disciplines at York and providing an opportunity for consultation with our research community.
Solving…	The lack of an existing, York-specific framework of this kind or formal mechanism through which training and support can be mapped and gaps identified.
To realise…	The University's commitment to the values, principles and culture of open research, and in developing an open research community of practice.

Table 1: Extract from Open Research Skills Framework Concept Summary

We circulated a short use case questionnaire alongside the concept summary to selected groups across the University who already provide research skills training, or who we felt would have an interest in making use of the framework in their areas. This included Chairs of Research Ethics Committees and colleagues involved with our practitioner-led interest groups including the Research Coding Club,[11] ReproducibiliTea York[12] and EROS (Education Researchers for Open Science).[13] Only ten responses were received, but these were useful in terms of re-establishing the need for a framework and identifying key areas that needed to be addressed. Follow-up conversations were arranged by the Project

Coordinator with selected respondents and two productive online sessions were held with the Advocates network in order to collect their thoughts and feedback on the framework proposal. These discussions offered us insight into personal experiences and perceptions of open research from different perspectives, whilst also highlighting some issues which we felt were beyond the scope of the framework but worth exploring in future.

The case for a skills framework was also made during a series of breakout discussions on future plans at our well-received 'Open Research at York: Two Years On' event in July 2022.[14]

Developing the framework

With the collected feedback and ideas from our research community at hand the Project Coordinator set about drafting a framework with the intention of directly replacing our existing Practical Guide. The potential issues relating to LibGuides have been discussed elsewhere,[15] but we decided to stick with the platform as our guides are still the main route through which we provide specialised, in-depth advice and support for researchers and other user groups. They are easy to maintain and update, and can be copied by external LibGuides users through the Community Guides list (all our guides are Creative Commons Attribution-NonCommercial-ShareAlike licensed to enable reuse and adaptation).

The Project Coordinator structured the guide around a homepage and three sections: benefits of open research, open research lifecycle and open research community. We initially planned to present these sections as one long page to ensure that users do not miss any relevant information, but were advised that separate, shorter pages would be easier to navigate. Some other structural elements were removed from the draft guide to assist readability for different sized screens and essential accessibility measures such as alt text and use of headings were taken into consideration. The guide utilises the University's recommended fonts and colour palette whilst incorporating a set of cheerful and relevant illustrations from Pixabay which are licensed appropriately for reuse.

Here we address the content and development of each section in detail:

Home

This section introduces the framework, explains its purpose and includes key information defining open research terminology ('open research' or 'open science'). The page introduces the Open Research team and the training sessions we provide using a mapped box which features on several other guides for researchers. A feed from the York Open Research Twitter account is embedded on the page as this is one of the main channels through which we communicate updates on our services and promote the activities and outputs of our research community.[16] A list of open research values (accessibility, reusability, reproducibility, collaboration and transparency) has been devised through discussions with practitioners, and we anticipate that these values will be reflected in a forthcoming update to the University's open research statement. A link to a feedback form was included before the guide was published and a box describing OER (Open Educational Resources) has been added to the page following the launch of the White Rose Libraries OER Toolkit, a collaboration with colleagues at the Universities of Leeds and Sheffield.[17]

Benefits of open research

This section categorises benefits for the researcher and their work, the research community and wider society. The descriptions of each benefit are limited to three key bullet points and references to sources are provided for those who wish to read further. Research projects from practitioners at York have been added as case studies to illustrate each area and these examples cover practices across all three of our academic faculties, emphasising the benefits of open research for all disciplines.

Open research lifecycle

This section provides an overview of a range of open practices which can be embedded at four different stages of a research project: Develop (preregistration, Registered Reports, protocol sharing, open notebooks, data management planning), acquire (conducting participatory research, citizen science, reusing open data), process (research data management, using open source software) and publish (open access publication, open peer review, preprints, open data sharing and open access theses). It is intended to be adapted and modified to suit different disciplines, and according to the requirements and objectives of individual research projects. The description of each practice provides links to further reading and, where available, case studies to demonstrate their application across a range of York research projects.

Our initial plan was for this section to include an interactive element such as a wheel illustration to help visualise the lifecycle of practices (see Figure 1). We soon realised that this may be difficult to implement in LibGuides and would present accessibility and navigation issues, so we instead opted for two sequential columns and linear heading images for each stage (see Figure 2).
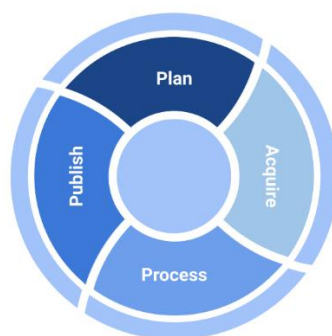

Figure 1: Open research lifecycle 'wheel', taken from an early draft of the skills framework
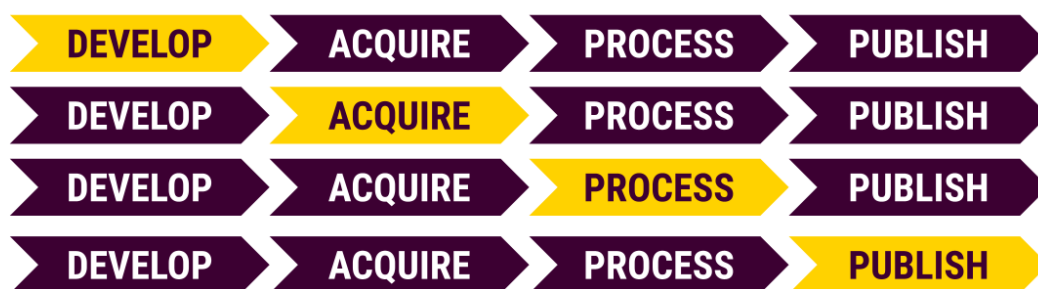
Figure 2: Header images for each stage of the open research lifecycle

Open research community

This final section details the variety of practitioner-led groups and initiatives that we are aware of across the University and which form the basis of a burgeoning community where open research-related issues and practices can be discussed. This section was initially focused on established groups in the Sciences faculty, but the addition of repositories and student-run open access journals in the Arts and Humanities and Social Sciences has ensured a more balanced representation of activities across disciplines. We will continue to add new groups and initiatives to this section when these emerge and as our community of practice becomes better-established.

Launch and future considerations

We launched the framework in time for autumn term 2022 and publicised it widely through both internal and external communication channels. We delivered a revised online training session based on the framework entitled 'What is open research and why does it matter?' to approximately 34 Postgraduate Researchers and members of staff in November and January.[18] Work has also begun on developing discipline-specific resources in partnership with practitioners which utilise elements of the framework. We plan to focus these on the less-engaged user groups identified in our survey, for example a potential workshop delivered in collaboration with our Humanities Research Centre, and we are encouraging our Advocates to develop their own resources and training using the framework as the network moves towards greater self-governance.

The framework will be adjusted and improved upon by the Open Research team in response to user feedback and as new open research initiatives and practices develop. We would like to provide more discipline-specific case studies to illustrate all of the practices and benefits mentioned, and we hope that our next round of Open Research Awards will produce more good practice examples that can be embedded. Another area for future consideration is providing bespoke lists of competencies or attributes to help practitioners identify skills gaps and support their progression, which may be particularly beneficial for those who are less well-engaged in open research practice.

We should also acknowledge that the framework does not address all areas within the conceptual scope of open research. These include considerations relating to research incentives and assessment, equality, diversity and inclusion in research and communicating research effectively to the public. We would like to emphasise that the framework is intended to be an evolving resource (this is why we have not produced a 'static' PDF or printed version) and will be updated at the point of need to respond to different requirements and emerging practices or issues. We also intend to revisit our earlier appraisal of existing frameworks and consider how these vary in scope and detail to what we have produced.

Conclusion

It is too early to formally assess usage of the new guide, but we have seen an increase from an average of 181 monthly views for the previous guide during the 12 months before the launch, to 484 views in October 2022 and 414 in November (a key point at which new Postgraduate Researchers may be seeking guidance). The view count fell to 136 in December, but this was expected because of the winter break and still indicates greater usage than at this time in previous years. Although far from overwhelming, these numbers are roughly in line with our other Practical Guides for researchers and we hope to sustain this level of interest over time. We also recognise that basic page views are not the most insightful indicator of user engagement, and a more in-depth UX (user experience) exercise or further practitioner discussion sessions may be useful to gather feedback and assess usage at the six or twelve-month review stage.
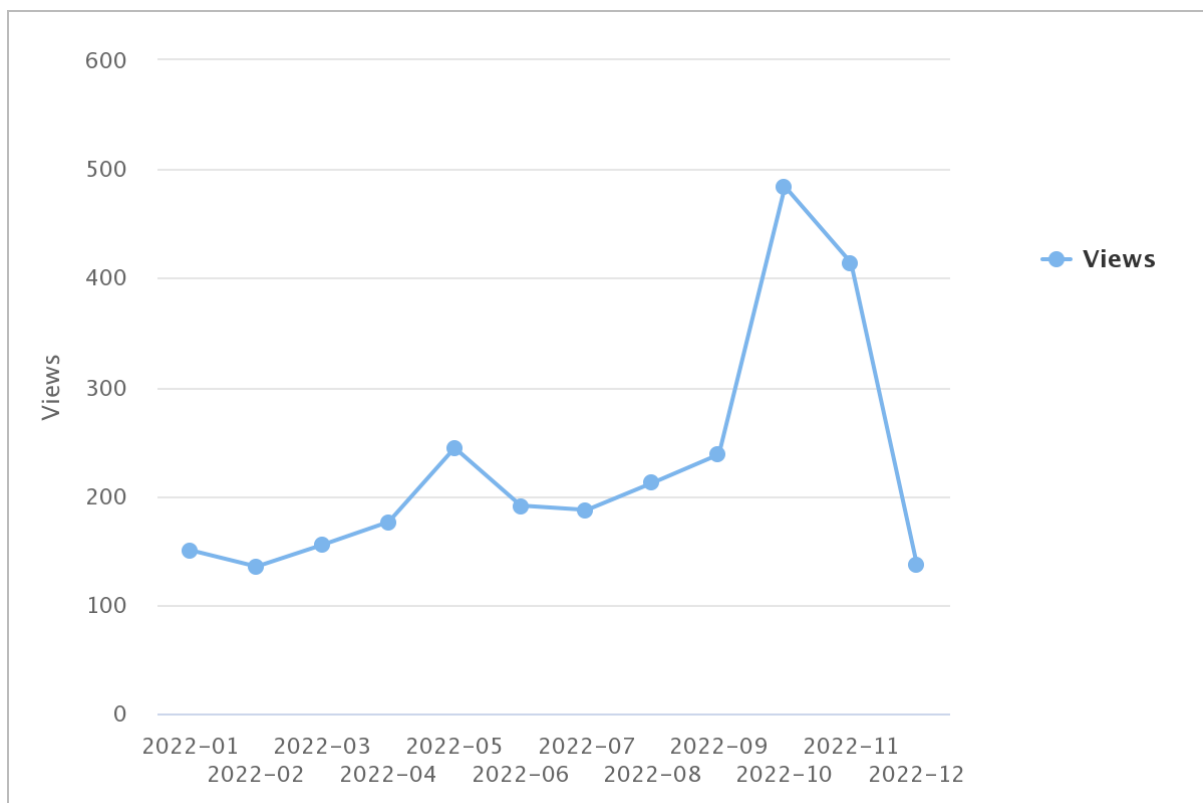

Figure 3: Guide views from the 12 months up to December 2022

The project has provided a good opportunity for our library-based team to work closely in partnership with our research practitioners, many of whom have become key contacts and helpful critics during the past three years of developing our open research initiatives. We acknowledge that we are not necessarily experts when it comes to the full range of practices across the open research lifecycle, and so our main recommendation from this project is to collaborate with the research community wherever possible in developing effective resources and guidance. Our other recommendation is to make the most of opportunities to recruit student interns who can help deliver such projects with enthusiasm, whilst ensuring that they are fairly renumerated for their work and gain useful knowledge and experience from their involvement. We were only able to fulfil our objectives within such a short timescale thanks to the efforts of our Project Coordinator, for whom the project has provided excellent insight into the cross-disciplinary nature of open research at the University and who thoroughly enjoyed working with stakeholders across our research community in developing the framework.

We are keen to see if other institutions choose to adapt our framework or take other interesting approaches in developing their own training and guidance in support of open research.

Acknowledgements

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