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STEM Librarians and the Future of Scholarly Publishing: Scholarly Communication Concepts that Researchers Need

Kelee Pacion

Princeton University, kpacion@princeton.edu

Melanie Radik

University of Massachusetts Amherst, mradi@umass.edu

Khue Duong

California State University, Long Beach, khue.duong@csulb.edu

Jessica Martinez

University of Idaho, jessicamartinez@uidaho.edu

Roxanne Bogucka

University of Texas at Austin, roxanne.bogucka@austin.utexas.edu

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STEM Librarians and the Future of Scholarly Publishing: Scholarly Communication Concepts that Researchers Need

- 1) Kelee Pacion, Biology Librarian and Interim Head of Lewis and Engineering Operations, Princeton University, kpacion@princeton.edu
- 2) Melanie Radik, Science & Engineering Librarian, University of Massachusetts, Amherst, mradi@umass.edu
- 3) Khue Duong, Science Librarian, California State University, Long Beach, khue.duong@csulb.edu
- 4) Jessica Martinez, Science Librarian, University of Idaho, jessicamartinez@uidaho.edu
- 5) Roxanne Bogucka, STEM Liaison Librarian for Health Sciences, University of Texas at Austin, roxanne.bogucka@austin.utexas.edu

Abstract

This narrative reflection describes how five librarians developed a scholarly communication workshop intended for a specific conference with an audience of science researchers, then proceeded to modify it to fulfill different professional development opportunities. We explored themes around open access, the current and future landscape of scholarly publishing, and the decision factors for researchers when choosing a journal to submit papers to. Identifying further venues for the workshop and submitting formal and informal proposals leveraged our knowledge of our own professional associations and what might appeal to those audiences.

Introduction

Presented with the theme of the 2021 annual conference for the American Association for the Advancement of Science (AAAS), “Envisioning Dynamic Ecosystems” and empowered by a group networking session of science librarians at the previous year’s annual conference, five librarians from across the country collaborated on a scholarly communications workshop that was accepted by the rigorous AAAS proposal committee.

What could be a more dynamic ecosystem than the scholarly publishing landscape in the sciences as we grapple with the transition to open access (OA), open data, and other improvements to equity in sharing information? We wanted to bring content that would help the scientists attending the annual conference gain a deeper understanding of the available choices in scholarly publishing, encourage conversations about open access, and even get them thinking about the role they play in shaping this ecosystem and how to leverage the power of their choices.

We knew we wanted to incorporate active learning, and that in addition to the learning goals for attendees (see: AAAS Workshop Slide Deck) we librarians hoped to gain a better understanding of researchers’ decision-making processes when it comes to journal selection for their publications. For an additional challenge, we knew by the time the proposals were due that the meeting would be taking place virtually, so our format had to work over video conference.

Workshop Content

For details of the workshop agenda, presentation, exercises, and discussion prompts please see additional materials: AAAS Workshop Slide Deck (including presenter notes), Where to Publish Handout, and Envisioning the Future Padlet.

Case Study Exercise

From consultations with researchers at our own institutions we knew the choice of where to publish can vary greatly depending on stage in career, specific discipline, even the character of the institution or tenure review board a researcher is working with. Rather than trust that we would have attendees representing the breadth of these variables and inspired by the [National Center for Case Study Teaching in Science \(NCCSTS\)](#) (2020), we decided to create a case study exercise that would test out these variables in a more controlled fashion.

We presented the case of a researcher needing to choose between two journals for their article: an open access, relatively well-respected journal specific to their subfield, contrasted with a traditional subscription journal, with a high impact factor but restrictive in all the traditional ways. These two journals were presented to each of the five breakout groups in the workshop. The variable? Each group was assigned a different persona, at a different stage in their career, and with varying factors such as available funding and their goals for their next publication (see: Where to Publish Handout). Professor Pat, Tenure-Seeking Taylor, Grad Student Gale, Industry Indiana, and Postdoc Peyton allowed attendees to slip into another skin and consider the decision with a little more objectivity than if we asked about their own circumstances. This also allowed for members in each breakout group to come to the discussion on the same page, regardless of where they happened to be in their own careers.

Our goal with this was to encourage participants to acknowledge the factors influencing their choices, such as those intrinsic to the journal (e.g. author fees and impact factor) and those that were specific to the researcher's situation (e.g. tenure review board biases and available funding). We librarians also wanted to know whether anyone would go for OA because it is the more ethical and equitable choice - a big conversation in libraryland, but how much had it

penetrated in science research domains? This contemplation would transition us nicely into the other thought-exercise our proposal collaboration team prioritized: envisioning the future.

Envisioning the Future Exercise

Librarians and researchers both are simultaneously observers and actors in the changes taking place in the scholarly communication landscape. From new platforms and formats for disseminating research to new business models for accessing full text, the entire ecosystem is undergoing such fundamental changes that predicting the new shape of things seems impossible. The [Institute for the Future \(IFTF\)](#) (2020) in Palo Alto, CA has been developing tools and methods to prepare for emerging trends and disruptive forces. IFTF foresight thinking trains futurists to tap into the signals of the future, mapping out potential scenarios with digital artifacts. Instead of predicting the future, foresight thinking anticipates and prepares for changes.

For this component of the workshop, inspired by futurist Trista Harris (2019), our exercise in the small-group discussions prompted attendees to contribute their thoughts on four aspects of the scholarly publishing ecosystem: current reality; signals of the future; ideal future; and keeping what works. Using the [Padlet](#) online participatory platform, attendees were invited to jot down their ideas for these four scenarios. As the first round of contributions slowed, the discussion facilitator - one of the five presenters - probed further, obtaining a rich discussion about the state of scholarly publishing and priorities for how it might evolve. We hoped that this empowering activity would highlight these content creators' power within the publishing ecosystem, and encourage them to be proactive in seeing the ideal become the reality.

Train-the-Trainers Transformation

After our success at AAAS, we felt the need to share this content with our librarian colleagues. We submitted proposals to ACRL's Science and Technology Section (STS) workshop series

and the Special Library Association's annual conference. Our goal was to take our initial workshop lesson plan and tweak it to present a train-the-trainers approach. Librarians attending the workshop could then take the material and apply it to creating their own workshops for scientists at their home institutions, or even use it to inform one-on-one scholarly communication consultations with researchers looking for advice on publishing.

We kept much of the workshop's content the same, aiming for a learn-by-doing approach to the breakout room exercises. We added some framing information to the introduction, adjusted the learning objectives for the new audience (e.g. "Promote a deeper understanding of the players in the scholarly publishing landscape" became "initiate conversations about publishing and promote a deeper understanding of the scholarly communication landscape"), and added a whole-group wrap-up discussion section to brainstorm ways to apply what they learned to their own work.

Observations from Attendee Contributions

In a sense, the participants' views on the current state of scholarly publishing were not surprising. Many expressed that the current publishing model was not sustainable for research authors, libraries, society publishers, university presses, and other stakeholders. The peer-review process took too long and authors often could not retain their rights with the post-print copy. The onus of understanding the nuances of the authors' rights and publication agreement fell on the researchers (and the librarians to a certain extent) when their priorities should be focused on research. Furthermore, the tenure-and-promotion process heavily valued paywalled high-impact-factor commercial journals with less recognition of different publication formats such as podcasts or blog posts as well as impacts of non-traditional publishing platforms based on alt-metrics.

Some expressed that the current publishing models tended to focus on the North American and European perspectives with little incentive to provide access to researchers in other parts of the world. Bias in the system around gender, race, and nationality had recently been highlighted for attendees as many access issues were exacerbated during the pandemic.

As far as keeping what works now and propelling the good practices into the future, workshop participants expressed the importance of democratization of information access and working towards the public good. The trend toward open data and OA publication would be accelerated with more preprint repositories in a variety of academic disciplines and with more funding for OA mandates. Libraries' role as funders should prioritize OA and not-for-profit models such as the [OA Community Investment Program \(OACIP\)](#) (2021) rather than for-profit publishers. The practices of open science and reproducibility would gain more recognition, including publishing negative results or having methodology and hypotheses go through peer review before the manuscript submission.

Future Projects and Planning

Knowing where to publish a scientific article is a gap that commonly exists in both graduate and undergraduate education, based on how often we receive inquiries about open access publishing. As experts in scholarly communication, this gap can be addressed by librarians, which was the impetus for the entire project. As we approached this project as an active learning, case-based study, we wanted to make sure we reached our target audience, hence choosing a science based conference; however, we know there are more opportunities out there.

In the hopes of expanding our reach beyond conference attendees and directly into the classroom, we identified the [NCCSTS](#) (2020) as a good potential next step for storing our case

study and lesson plan. The NCCSTS hosts a peer-reviewed collection of case studies designed for use in the classroom. As part of engaging with NCCSTS, it is our intention to expand upon our case study, further develop our teaching notes, and submit this workshop as a “Dilemma/Decision Case” for peer review by the NCCSTS. Getting into the science curriculum as a librarian can be a challenge, but we believe we have a compelling active learning-based lesson plan that can easily be added to any undergraduate or graduate science curriculum.

Future goals for this content as a workshop include reworking it to address that gap in training of graduate students of various disciplines. This will allow us to add finer details to how other disciplines decide where to publish, as well as increase dialogue between STEM and the humanities. Similar scholarly publishing workshops during events such as Open Access Week or Love Data Week are also good outreach efforts, inserting the library’s roles in the conversation about sustainable and equitable information sharing.

Conclusions

We learned a lot and flexed our collaboration and scholarly communication chops in this nationwide five-librarian workshop team. From using new synchronous and asynchronous collaboration tools to prepare presentation materials and practice the presentation; to witnessing the wide range of attitudes that still exist about publishing open access; to the inspiring ideas attendees in both the researcher and librarian workshops came up with for an ideal future of scholarly publishing, this has been a rich and rewarding experience. We hope that our account can assist our librarian colleagues in pursuing far-flung collaborations and leveraging your network of colleagues to apply for opportunities you may not be comfortable taking on solo and inspire new ideas for scholarly communications programming and conversations with your content creators.

Additional Material

AAAS Workshop Proposal

SLA Workshop Proposal

AAAS Workshop Slide Deck

Where to Publish Handout

Full Journal Evaluation Rubric

Envisioning the Future Padlet

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