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SCIENCE EDITOR

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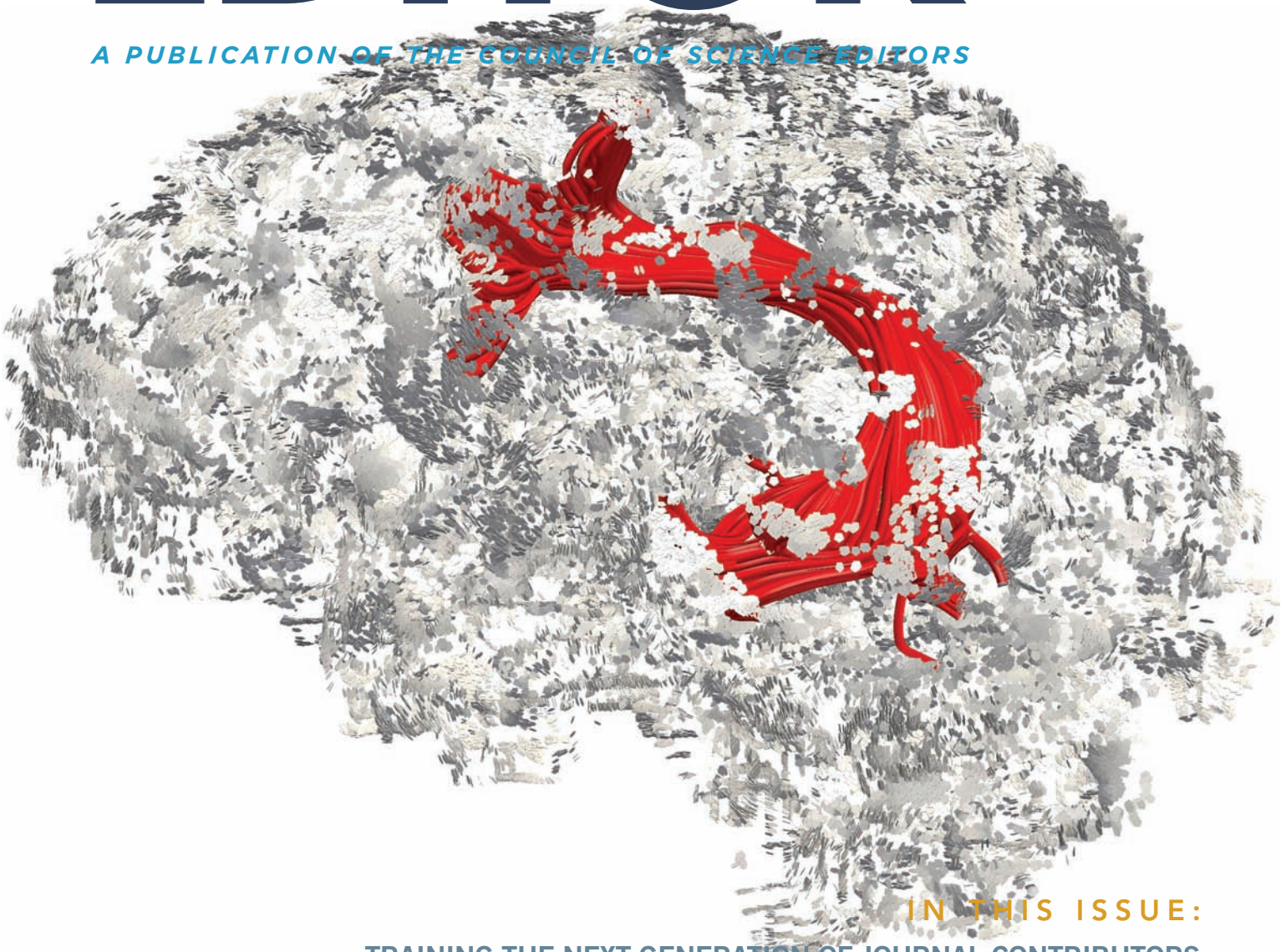

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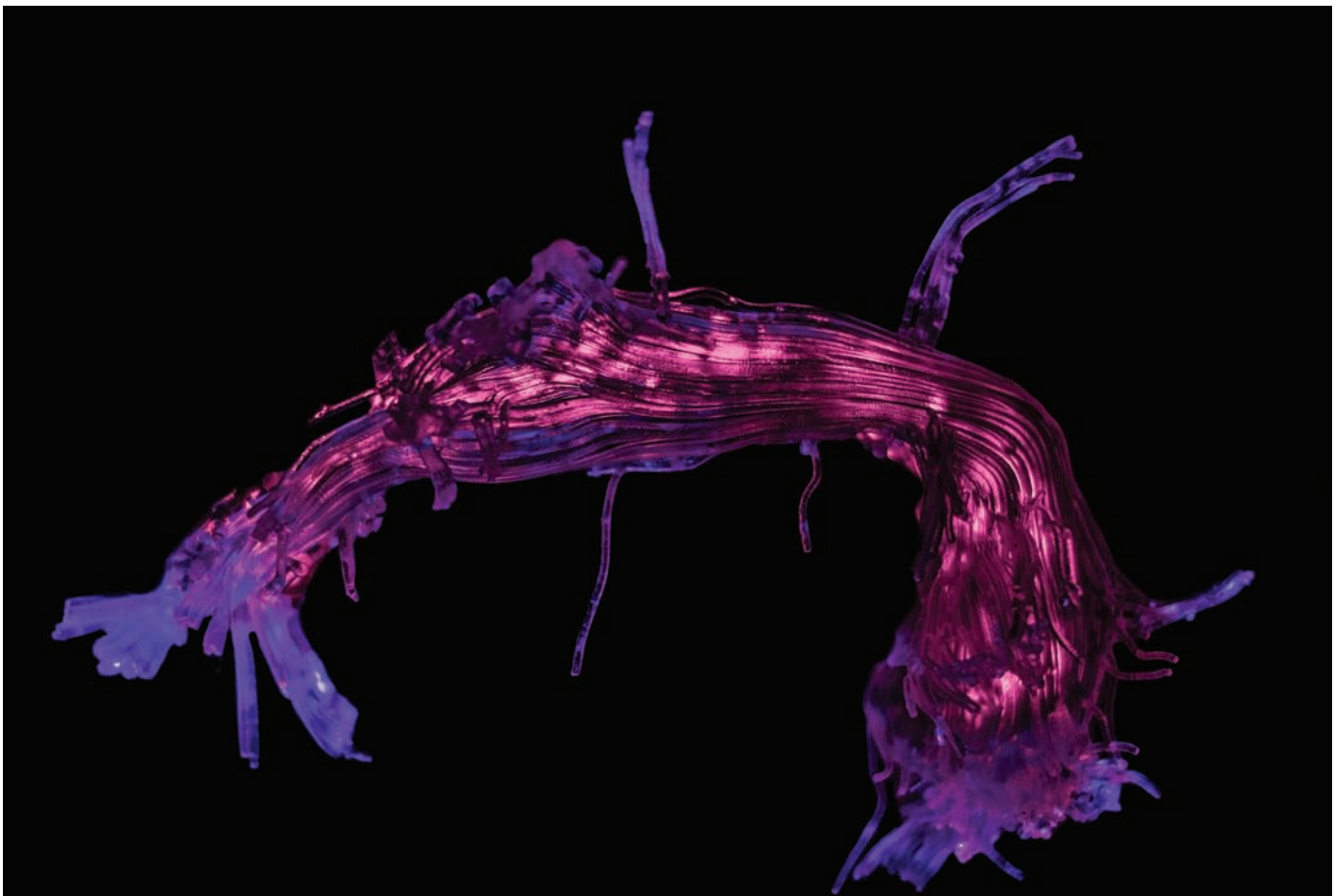

Credit: 3D printed reconstruction of the arcuate fasciculus. Forke, Stephanie J. (2016) Wellcome Collection. Attribution 4.0 International (CC BY 4.0)

Via the Wellcome Collection: "The brain is composed of two types of matter: grey and white. The grey matter contains cell bodies, and is responsible for processing information. White matter connects these grey matter areas, allowing signalling (and information transfer) between remote areas of the brain.

Language is considered a uniquely human cognitive ability. Its anatomical foundation in the brain has primarily been mapped to two distant brain regions in the frontal and temporal lobes. This image shows a 3D-printed reconstruction of the arcuate fasciculus, the white matter pathway connecting these two areas. Although discovered in the 19th century using post mortem dissection methods, it is only with the advent of new technologies that this connection could be visualised in the living human brain.

To create this work, a type of MRI called diffusion tractography was used to generate a 3D map of the arcuate fasciculus. The data were then converted to a file compatible with 3D printing. The 3D print is made from clear resin, and was illuminated using coloured light in a darkroom for this photograph."

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CASE STUDY

RESEARCH

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On the cover: *Language is a complex function in the brain bridging multiple cortical regions. The image on the cover of this issue of Science Editor visualizes these language processing regions. Here, the "brain is viewed from the side (sagittal view), with the front of the brain facing the left side of the image and the back of the brain on the right. Language is processed across a large network of brain regions, with two regions primarily important for language, one for articulation and one for comprehension. These areas are located in distant parts of the brain and are connected to each other by the arcuate fasciculus (red). Brain cells communicate with each other through these nerve fibres, which have been visualized using diffusion imaging tractography." Credit: Processing language, left brain hemisphere (sagittal view). Stephanie Forkel, NatBrainLab. Wellcome Collection (CC BY 4.0). https://wellcomecollection.org/works/w38bxm5s*

Training the Next Generation of Journal Contributors: A Case Study at *Environmental Health Perspectives*

Kelly Lenox

Many scientific societies sponsor programs that help early career researchers (ECRs) establish themselves in their fields. Journals, too, are involving ECRs in both ad hoc and routine operations, to provide members of the next generation of scientists with working knowledge of how scientific manuscripts traverse the gauntlet from editorial evaluation through peer review and publication. With this article, *Science Editor* launches a new series focusing on ECRs in scientific publishing. The series begins with a case study of the ECR Initiative[1] at *Environmental Health Perspectives* (*EHP*), a leading journal in the fields of environmental health sciences including toxicology, environmental epidemiology, and exposure science. The *EHP* editorial team hopes that sharing their experience will benefit other journals, publishers, and organizations implementing or exploring similar programs. The team also hopes to encourage open conversations about challenges faced, participant experiences, and best practices for recruiting and engaging participants.

EHP, which is published with the support of the National Institute of Environmental Health Sciences (NIEHS; part of the National Institutes of Health), launched its ECR Initiative mid-pandemic, in the spring of 2021. To build a team dedicated to developing, maintaining, and leading ECR-focused activities, as one of its first steps, *EHP* engaged an advisory panel of ECRs in the environmental health sciences. *EHP* defines ECRs as graduate students or researchers having fewer than 3–5 years of professional experience since their terminal degree or postdoctoral training. This definition allows individuals with a variety of career paths to self-identify as ECRs. Candidates for the advisory panel are chosen for their active participation in the environmental health research community, leadership potential, and scholarly achievements.

EHP Senior Science Editor Windy Boyd was instrumental in fostering the initiative, which gained momentum after the journal's strategic planning summit in January 2021. "One of the journal's goals is to foster development of an innovative, diverse, international community of contributors in the environmental health sciences. One way we can do that is to offer learning opportunities and experience in all stages of scholarly publishing, from authorship to peer review and manuscript editing," Boyd said. "During the planning summit, some participants brainstormed goals and activities, which helped shape the initiative's early form."

EHP Associate Science Editor Kristin Inman, a member of *Science Editor*'s board, serves as a day-to-day lead on the project. "We're learning as we go," she said, "so we want to share our experiences with other journals and publishers interested in launching similar programs."

As this article goes to press, the ECR Initiative advisory panel is entering its second year. Most of the inaugural members have chosen to continue their service, as early projects come to fruition and new ones take shape. "The work of the panel continues to become more visible," Inman said.

Boyd is optimistic about the future of both the panel and the overarching initiative. "So far, there has been no shortage of interest from ECRs," she observed. "For the first round of the advisory panel, our deputy editors reached out to scientific societies including the Society of Toxicology, the International Society of Environmental Epidemiology, and the International Society of Exposure Science, who identified leaders in their disciplines as potential candidates. We also reached out to ECRs in our pool of reviewers." Moving forward, *EHP* wants to reach beyond those in its immediate network. "Our goal is to widely advertise the program and accept self-nominations to the panel," Boyd said.

Inman elaborated on efforts to diversify participation in the ECR Initiative. "We want to make sure we are reaching

KELLY LENOX, Environmental Health Perspectives, Associate News Editor.

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those who may not have access to similar programs or resources," she said, "to level the playing field for all scientists, researchers, and communicators." Doing so will also bring a diversity of experiences, ideas, and problem-solving strategies, she noted.

Benefits Extend Beyond ECRs

In an environment where active researchers are also authors, reviewers, and teachers, projects designed with ECRs in mind may have a payoff for others, including the journal itself. A case in point is *EHP*'s peer reviewer resource center,[2] launched in late 2021. The center offers guidelines for reviewing each section of a manuscript, accompanied by a convenient checklist, recommendations for writing constructive feedback, and journal policies on peer review, confidentiality, and conflict of interest. Initially conceived as support for ECRs stepping into the reviewer role at *EHP*, the resources help develop the expertise of any peer reviewer. By extension, benefits accrue to associate editors (AEs) and other editors at *EHP*.

The resource center's impact has already extended beyond peer reviewers. Advisory panel member Donghai Liang invited his lab members—about a dozen trainees ranging from undergraduate to postdocs—to check out the resource center, as well as the journal's author guidelines.[3] "My trainees have told me that they found these materials super helpful, including useful information for drafting, revising, and reviewing manuscripts," he said.

To involve more ECRs in peer review, journal staff established a database of ECR reviewers that can be searched by AEs seeking experts to review manuscripts. The database and resource center are complemented by opportunities for mentored peer reviews, which *EHP* encourages its more senior reviewers to take on. This activity was especially attractive to advisory panel member Mimi Huang, PhD, a toxicologist who conducted her postdoctoral research in the NIEHS Division of Translational Toxicology. Huang is part of a team of *EHP* editors and advisory panel members who collaborated to propose a manuscript review seminar for the 2023 Society of Toxicology meeting. "I am excited about teaching others how to do [peer] review," she said. "I was fortunate enough to have good mentors for conducting manuscript reviews; not everybody has that." Huang offered a preview of the seminar. "We will go through what happens on the journal side, what reviewers should look for, common mistakes, and so on," Huang explained, noting that the opportunity to help lead an *EHP*-sponsored conference presentation is just one benefit of joining the advisory panel.

Mentoring extends to more general science communication, as well. *EHP* recently completed the trial run of a mentored writing opportunity, not unlike the one offered by *Science Editor*. Among the products of the *EHP* News team, led by Susan Booker Woolard, are Science Selections. These brief articles summarize the findings of recent *EHP* publications and include critical comment from outside experts on the work's implications. The first mentee, Oyelola Adegboye, is a public health biostatistician interested in exposure science and population studies. He sought to strengthen his skills communicating research to those beyond academia. "Communicating science as news articles requires different sets of storytelling skills to make sense of findings in a research article," he said.

Once the right paper came along, the News team coached Adegboye on how to approach the task, structure the story, find subject matter experts, and other finer points. After completing two now-published Science Selections, he admits that the work took longer than expected. However, he also said researching new studies generated ideas to explore in his own work, and he especially appreciated being able to develop a writing style suited to communicating results in a good story for nonacademic outlets. "The first news article took about 3–4 iterations, with excellent and constructive feedback each time," said Adegboye. "By the time I was ready for the second news article, I only submitted two drafts before it was accepted." He added that he would definitely take on the opportunity again.

On the shorter side of writing, advisory panel members provide *EHP*'s weekly #TuesdayTip tweets, with pointers on manuscript preparation, graphics, writing, publishing, publicizing, and more. As ECRs themselves, panel members have the needed insight into topics of interest to other ECRs. Liang pointed to a tip tweeted in May:

> *Stressing about sending your #uglyfirstdraft to your mentor or collaborator? Remember that every beautiful paper starts with an ugly draft, and editing is usually a part of every author's contribution to the paper.*

He shared the succinct advice with his students. "This is so well said, it encourages them to keep practicing writing, so the draft will eventually become a beautiful article, with the support and help from the entire writing team," he said.

More to Come

An ECR program must grow along with its participants. *EHP*'s ECR Initiative is still taking shape, according to Inman. "We have a number of big items cooking right now that we're really excited about," she said.

Editor-in-Training

To serve ECRs seeking to join editorial review boards, or interested in careers in publishing, the journal is developing an editor-in-training (EIT) opportunity. Applicants selected for this unpaid position will receive hands-on training to support participation in the editorial process. For *EHP*, it

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promises to be a win–win, with potential to increase the pool of qualified reviewers and editors, and thereby help diversify its editorial boards with respect to career stage. As currently envisioned, an EIT would be paired with an AE and staff science editor, sit in on editorial meetings, and participate in several manuscript reviews, including taking the lead to shepherd one paper through the full peer-review process.

Learning Modules

The advisory panel and journal staff are developing free learning modules on publication ethics, reviewing manuscripts, promoting one's own research, science communication resources, and related topics. Formats—still on the drawing board—may range from webinar recordings to fact sheets, resource lists, and infographics. The modules will be revised and expanded as users gain experience with them.

Panel members have contributed other ideas that are under consideration, including opportunities for ECRs to author front matter content and formation of a review club.

Building on Lessons Learned

Regular reviews of any initiative allow building on successes and learning from challenges. *EHP* has certainly faced challenges and expects new ones to arise as its initiative reaches into new territory. For example, one membership goal is geographic diversity. Accordingly, current panel membership stretches across time zones from Nigeria to North Carolina and on to Australia. Yet this complicates scheduling meetings. Throw in the different platforms available at different institutions—Zoom, Microsoft Teams, GoogleMeet—and logistics can become a formidable challenge. Still, the benefits of this geographic diversity have exceeded expectations, according to panel members. Huang, for one, values working on a global team. "It's gotten me thinking more globally—both about the needs of ECRs in other countries with different education systems, and about environmental health issues different from what U.S. researchers and funders focus on," she said.

Huang is also looking forward to moving from advising into more concrete action. Inman explained that as the advisory panel moves into its second year, its members are taking lead roles in envisioning and launching new program elements. "There is room for experimentation," she said. "We hope this will grow organically from the interests, skills, and specialties of the panel." The strengths each member brings to the panel have contributed not only to the shape of the initiative, but also to the group's collegiality. "Working with the other ECRs was a great experience, and I hope to maintain those connections in the coming years," Huang said.

Liang echoed the sentiment. "Being able to communicate and work with my excellent advisory panel colleagues helps me learn what ECR careers feel like across different institutions and sectors (academia, government, industry, etc.)," he said. "I really enjoy brainstorming with these colleagues and the *EHP* editorial team on ways to engage early career researchers in the fields of exposure science, environmental epidemiology, and toxicology."

Measuring success remains a challenge. Anecdotal evidence to date is encouraging, but as the program develops, the journal's editorial team seeks clearer evidence of what is working—or not—and why. For instance, with respect to mentored reviews, when an AE selects an ECR reviewer, should the editor be surveyed afterwards? If so, would having to complete such a survey be a disincentive to participating? Or is it sufficient to track whether an ECR receives a second invitation to review? Should an ECR who does not receive an invitation consider that a reflection on their qualifications, or would the journal need to specifically encourage the AEs in each ECR specialty to take on mentorship? These questions are not unanswerable; they simply reflect the early stages of this new and exciting program.

EHP is interested in hearing from journals and editors who have questions about the initiative or experience doing something similar. Please email Inman at Kristin.Inman @nih.gov.

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3. https://ehp.niehs.nih.gov/authors/preparing-your-manuscript

Frustration With the Submission Process/System: Results From Survey Data

Jennifer Parresol

Abstract

With the constant technical upgrades and changing policies and practices for journal article submission platforms, it is no wonder that authors, editors, and reviewers are all frustrated. Editorial staff need to assess all aspects of these systems to determine how to help alleviate the stress and streamline the process while maintaining the integrity of scholarly publishing. Editorial staff must step back and view the editorial process through the eyes of the authors, editors, and reviewers to fully understand their frustration. For this study, authors, reviewers, editors, and publishing professionals were surveyed to determine their frustrations with current systems and processes, and survey data were analyzed to make recommendations for mitigating user frustration in the submission process.

Introduction

Authors want to publish their research in a respectable journal without having to spend hours of their time in the submission process. Trying to figure out all the different formatting rules and submission guidelines, in addition to figuring out how to operate within the platform, takes time. One author described the submission process steps in a piece written in *The Scholarly Kitchen* as follows, "Negotiate a misleading and counterintuitive third-party platform, read, and try to absorb several pages of arcane (and sometimes self-contradictory) format guidelines, categorize my article according to a rubric that did not make sense and finally, follow an uploading process that left me, at several points, unsure of whether I would have the opportunity to include essential figures."[1] Why is it so difficult to submit? Are the instructions unclear, hard to find, or simply too long? In addition, reviewers, and editors express frustration with inputting comments and making decisions in the submission system. There are many culprits, and publishers should be working to streamline the process. To find some answers, I surveyed 7 publishing professionals who work on various article submission platforms.

JENNIFER PARRESOL, Senior Managing Editor, American Society of Civil Engineers.

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Study Design

To determine what the main problems are for authors, editors, and reviewers, I surveyed 7 publishing associates who work directly with all aspects of the submission process using a variety of submission systems. These 7 publishing associates work within the following 4 publishing companies that cover a wide range of subject matter: American Society of Clinical Oncology (company 1), American Urological Association (company 2), American Society for Microbiology (company 3), and American Society of Civil Engineers (company 4). They provided their insight on what frustrates authors in the submission process, along with concerns or difficulties editors and reviewers have during the review process. I also reached out to 34 chief editors at American Society of Civil Engineers (ASCE) to obtain their perspective on article processing, not just as a chief editor, but also as an author who submits to a variety of publishers. The findings are discussed in this article and the raw, anonymized survey results are in the appendix.

Authors

Some of the results that I gathered from the 4 organizations pertaining to authors fall into just a few categories, with the time it takes to submit an article being the number one complaint. This includes, but is not limited to, multiple steps that must be completed before the article can be submitted, such as entering individual author information, answering a multitude of questions, and then re-answering the same questions at revision and adhering to limits on word count, references, figures, and tables. The time complaint is not just related to the submission of the article, but also to the wait time on a decision. Regarding time-to-decision, a company 2 associate stated, "We aim to be quick, but this can be hard for authors, particularly if they are rejected and

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Table 1. Sources of author frustration.

	Company 1	Company 2	Company 3	Company 4
Wait time between submission and decision	X	X	X	X
Revision submission process to include answering multiple questions, uploading different file types	X	X	X	X
Formatting files; which can only be in certain formats, word counts, figure, and table sizes			X	X

must resubmit somewhere else." The next most-common complaint concerned technical issues. This included not being able to log into the submission system and the system timing out or being slow when moving from one step to the next. Publishers' survey responses listing common author frustrations are included in Table 1.

Reviewers/Editors

It is not only the authors who have dislikes and heartache when working in submission systems. Editors and reviewers have their own set of frustrations provided by the publishing associates (Table 2). Two frustrations that top the list and go together are finding reviewers and reviewer overload. It often takes many days or weeks to find reviewers on the thousands of papers in review each year, so editors tend to turn to the same reviewers each time because they know the reviewers will complete an honest, in-depth, and fair review. But this practice can lead quickly to reviewer burnout. As company 1 stated, the goal is, "finding enough reviewers to review a given manuscript without overtaxing the same pool of reliable experts."

Reviewers also deal with frustration during the review process. Having to decline reviews due to multiple invitations and then fitting in the time to complete in-depth reviews while staying committed to their other responsibilities is a significant challenge. Their available time is taxed further when there are technical issues with logging in or not being able to find the needed files to complete the review successfully. Also, it certainly does not reduce the reviewers' stress when authors inquire regarding the review status week in and week out.

Table 2. Common editor and reviewer complaints.

Publishing Role	Frustration	Company 1	Company 2	Company 3	Company 4
Editors/ Associate Editor	Finding multiple reviewers so as not overload a small percentage with papers	X	X	X	X
	Multiple step processing when working in the system: assign submission, invite reviewers, make decision; technical issues	X			X
	Selecting Associate Editor with the correct expertise		X		
Reviewers	Finding the time to complete several reviews	X	X	X	X
	Fatigued/overworked	X			
	Technical issues when submitting the comments/attachments; not being able to log in			X	X

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Chief Editor

Continuing with the survey, I reached out to chief editors to get their opinion on using submission systems both as editors and authors. The feedback I received correlates with the responses from professionals working in the field of publishing. The top 4 complaints on the list are as follows: 1) prescreening process of submission, 2) reviewer databases, 3) lag time, and 4) formatting issues. In most cases, all portions of the full review process are completed by volunteers. One exception is when a chief editor or other type of editor is paid for a portion of their time. With the majority editors and their teams being volunteers, publishers should be looking at ways to decrease the stressors without decreasing the value of the research materials to readers.

Discussion

Reducing Stressors in the Submission Process

Based on the survey results, I recommend the following to reduce the stress presented by the authors, editors, and reviewers. This begins with the submission process starting with the authors submitting an article to the journal that best suits the field of study. To reduce stress, publishers need to provide clear, concise instructions for the authors from start to finish, but in a way that authors do not have to search hundreds of pages to find the formatting protocols. Once submitted, the review process, which can be lengthy and require hours of a volunteer's time, begins. The companies surveyed for this section vary in scholarly publishing fields, and so do their types of review and processing; however, all follow the same general process of authors submitting their papers, editors assigning reviewers, and reviewers making recommendations for the editor.

The publishers surveyed were followed up with how they are reducing stressors for authors, editors, and reviewers. These steps are being taken by the publishers, and whereas only a small fraction of how frustrations in the submission process can be reduced, these actions can certainly improve the process.

ASCE is working to reduce the stress for authors by adding quick links to the author submission page. This allows authors to quickly find the submission information or instruction. On the author questionnaire, ASCE now provides drop down lists for data availability questions so that the authors can select an answer instead of having to complete a free text field, which can become wordy. In addition, ASCE has partnered with a language service that allows authors to pay for English language assistance.

The American Urological Association is working on updating their corresponding author questionnaire to reduce the amount of time it takes an author to complete it. Condensing the questionnaire will decrease the time coauthors take in completing the questionnaire later in the process; additionally, the corresponding author only needs to confirm information at the revision stage.

The American Society of Clinical Oncology (ASCO) provides EZSubmit: a "format-free" initial submission. ASCO has also partnered with outside companies to assist authors with the submission process. To reduce the time associate editors must spend searching for reviewers, they have incorporated the Publons/Web of Science Reviewer locator. ASCO provides 2 expedited review processes called Rapid Review and Fast Track resubmission programs: more information about these two programs is available on the ASCO website.[2]

Conclusion

There are many avenues publishers can take to help reduce workloads, submission time, and reviewer frustration. But to do this, they first must understand what those issues are and how the issues affect each aspect of the process. Gathering regular feedback from parties who work with the system on all fronts allows publishers to keep current with problems and frustrations. Incorporating new technologies, like artificial intelligence, can both shorten the time frame to complete a task and enhance capabilities that already exist. Each publisher has different processes and systems in place, so one solution will not fit all; however, publishers can collaborate to find ways to reduce stress and save time.

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The Appendix is available for download here: https://www.csescienceeditor.org/wp-content/uploads/2022/09/Appendix.pdf

Combatting Exclusionary Language Practices in Science Publishing: A DEI Concern

Sarah Frances Gordon and Emiliano Gutiérrez Fierros

Over the last few decades, English has become the dominant language of science. It offers a platform for communication across countries and knowledge-building processes.[1] The mantra of "publish or perish" in the academic community is well known, and many are under increasing pressure to publish in high-profile journals, which are mostly English-language journals.[2,3] Academics are expected to publish in English regardless of whether this is their mother tongue, or even what region their research was conducted in. As a result, non-native English speakers invest considerably more time and effort in honing their academic writing skills in a language that is not their own. While many non-native English speakers can meet or exceed the writing skills of their native English speaking counterparts, the extra effort required to reach that level places them at a significant disadvantage.

In this context, your success as an academic appears to be contingent on your ability to write in English. However, navigating the Anglophone scientific publishing world can be stressful and can cause anxiety for many non-native English speakers. Academics that choose an alternative route and publish in non-English language journals are at a disadvantage as their work is often cited less and overlooked in the international community,[4] but ignoring non-English literature and scientific advancements in other countries creates biases in research. Furthermore, ignoring research published in other languages also contributes to incomplete scientific understanding and hinders international collaborations on global challenges such as climate change and pandemics.[1,4]

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English-Only Compounds Inequities

The crude construction of the native vs. non-native English speaker dichotomy in this discussion conceals inequalities present in the scientific community,[2] and there are also important challenges other than language bias to consider. For example, academics conducting research in less-developed countries experience financial and scholarly isolation, and many academics in these regions struggle to access literature, as much academic knowledge is locked away behind paywalls.[2] These academics may also experience difficulties publishing their research as their institutions may not have the funds to pay the high article processing charges (APCs) involved. Although many journals offer fee waivers and discounts, often these are poorly communicated, or the discounts are not significant enough. In recent years, the trend of open access publishing and the Open Science movement has led to the formation of many open access journals that do not charge any APCs. Despite all this, there is still significant pressure for academics to publish in high-impact journals, which are almost always English-medium and follow a traditional, subscription-based model and charge APCs. In this sense, academics from resource-rich universities in high-income countries who speak English as a first language are at a distinct advantage.

The native vs. non-native English speaker dichotomy also provokes problematic questions such as "who is allowed to claim English as their own?" and "whose language is it?"[5] These questions imply that English is constrained by British and American linguistic norms and is the property of a few.[5] However, English is an international language and is spoken by approximately 1.5 billion people worldwide. It belongs to all those who speak it and is not constrained by a geographical area. If we want to understand and combat exclusionary language practices, it is important that we also challenge our own underlying beliefs about the English language.

Making English the gatekeeper of the scientific community has contributed to inequalities in under-represented communities.[4] We must also acknowledge that there are underlying structural barriers that have contributed to the privileged status of Anglophone journals,[1,3] and this privilege

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is rooted in colonialism and racial injustice. Therefore, it is our responsibility in the scientific publishing community to question these exclusionary language practices and try to eradicate them. This is especially important now as we are seeing a push to prioritize diversity, equity, and inclusion (DEI).

Combating Exclusionary Language Practices

There are ways that academics and journals can combat exclusionary language practices in science. Journals should make their policies around sharing non-English versions of published articles clear to authors and remove any unnecessary barriers regarding copyright so that academics are able to disseminate non-English versions of their work online.[4] This will help broaden the audience of the work of many academics. It is also important that academics review literature in other languages as well and acknowledge the work being done on their topic in other countries. Collaborations between academics from the Global North and the Global South should also be encouraged.

English-language journals also need to implement steps to avoid language bias and editorial prejudice. Firstly, journals should include an explicit position on DEI on their websites[6] and explain how they are working to combat linguistic bias as part of their DEI strategies. Journals should be committed to ensuring their editorial board members and reviewers are linguistically, racially, and geographically diverse. Peer reviewers represent important "gatekeepers" in scientific publishing, and journals should instruct reviewers that their decisions during the peer-review process should be based on the quality of the science and content, not the linguistic fluency of the manuscript.[4] This will help reduce the language bias against non-native English authors, which is often seen in the peer-review process.[7] In scholarly publishing, promoting transparency and openness during the peer review process is also key to creating a unified community.

Peer reviewers should be instructed not to leave comments such as "manuscript should be checked by a native English speaker" as these can be perceived as offensive. Reviewers can simply leave comments such as "The manuscript must be edited again" if they are concerned about the grammar and syntax of the manuscript. Diversifying the peer-reviewer pool to include second-language English speakers and persons from developing countries will also help combat linguistic bias and support DEI in working with authors and reviewers.

Implementing these steps does not mean the quality of scientific publications needs to suffer, but there is a need to eradicate the exclusionary language practices in science publishing and include individuals in the process that understand the challenges involved in publishing in Anglophone journals. Diversifying the gatekeepers of the scientific publishing community will hopefully lead to more equitable outcomes. If we are truly committed to building a more equitable, diverse, and inclusive culture in science publishing then we need to take language bias seriously and attempt to address the inequalities it is perpetuating.

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Thoughts on Sex and Gender Inclusive Language in Medical Publishing

Amy Ritchie Johnson

"There is simply a need for language that acknowledges our existence."—Alicia Frausto (they/them)[1]

"Simplicity is always rewarded" is my motto in life and editing. But when it comes to the topic of sex and gender and all the threads twining these together, simplicity seems elusive. As a manuscript editor for a medical journal and a person who has worked with the written word for more than two decades, I'd like to give simplification a try. I'm no expert, just an advocate, so I may get some things wrong, but this topic is important enough and urgent enough to discuss, even with fumbles. My focus is on biomedical journals and the *AMA Manual of Style*[2] because most journals in this field adhere to its guidance, including those I've worked with, while recognizing that their guidance on sex and gender inclusive language is currently undergoing revision. Nonetheless, the current guidelines and practices for reporting sex and gender in medical journal publications are inadequate when accuracy and inclusivity are the goal. From data collection to the language used in reporting studies, we can do better. Changes will require flexibility and continued attention as we adapt more and open our ears more to the diverse voices in our communities. Even as style guidelines are updated, it will take time, and maybe effort, for authors and editors to absorb and apply them. But we must start somewhere. Let's start here: biological sex and gender are not the same. Although they are still being used interchangeably in many recent medical articles, particularly those investigating diversity in various fields, they have two different definitions and are not interchangeable.

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Biological Sex

Traditionally, biological sex has been understood as either male or female, but this definition is myopic and ignores the variabilities of biology. The reality is that there are variations on these two themes, and people with those variations are intersex and have differences of sex development (DSDs).[3] According to definitions provided by primatologist Frans de Waal,[4p.5] sex is "the biological sex of a person based on genital anatomy and sex chromosomes," whereby intersex refers "to a person whose sex is ambiguous or intermediate since their anatomy, chromosomes, and/or hormonal profile doesn't fit the male/female binary."

Unfortunately, even in recent studies, such as one by Feldman Witchel[5] that gives helpful details on how DSDs occur, these differences are referred to as disorders of "normal sex development." Calling differences that occur naturally "disorders" is unacceptable and part of the reason intersex patients and their families face so many challenges in social and medical contexts (e.g., displacement at school, discrimination, discomfort with seeking medical attention).

Currently, *AMA Style* briefly mentions intersex in section 11.12.7, "Sexual Orientation." But intersex, like male and female, is a form of biological sex and must be treated accordingly.

Most biomedical studies are reporting biological sex to investigate physiological differences. Medical publications that report on health outcomes, for instance, would consider gender a necessary data point, as it relates to social determinates of health (we'll get to this next). When the biological sex of a patient is known (here we need more precise [i.e., self-reported] data collection), it should be reported accordingly:

male patient
female patient
intersex patient

But what about transgender individuals who undergo gender-affirming surgery or hormone therapy? For those patients, wouldn't their birth sex and transitioned sex be

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relevant when studying incidences of disease or outcomes of treatment?

There should likely be a distinction made between "transsexual" and transgender in terms of biological sex referents because, although some individuals who undergo gender-affirming surgical or hormonal treatment may identify as transgender, not all transgender individuals will endeavor to undergo surgery or treatment related to their sex.[6] For this, perhaps the traditional term, transexual, could be used as a fourth sex referent. However, for sex and gender terminology and usage guidelines in medical journal publishing, scholars and representatives from the relevant (affected) communities should be consulted as to what terms are adopted into preferred usage.

Gender and Gender Identity

Gender is separate from but tied to biological sex. Gender may have some basis of expression in sex chromosomes, but that is not the whole of it. Using de Waal's[3] definitions again, gender can be understood as "the culturally circumscribed role and position of each sex in society." Gender is seemingly far more complex than biological sex, mostly because it is largely manifested in each of us as gender identity ("a person's inner sense of being either male or female" or neither or both). I am a cisgender woman, meaning I was assigned female sex at birth based on phenotypic features, and I identify, in terms of gender, as a woman. The possibilities are endless and potentially, likely, as innate as sex. A female-born person might identify as a man or gender neutral or somewhere on a spectrum. In various publications and social media self-expressions, I've read an array of terms that include nonbinary, gender neutral, gender expansive, gender nonconforming, and transgender.[7]

Currently, *AMA Style* states that "Whenever possible, a patient should be referred to as a man, woman, boy, girl…" (section 11.7, "Age and Sex Referents").[2] But really what should be stated is the sex of the patient not the gender. And as we see from the diversity of gender identities, this can't be inferred from biological sex. However, JAMA Network[8] has recently instituted new and progressive guidelines on pregnancy, "Studies that address pregnancy should … if the gender identity of participants was not assessed, use the terms 'pregnant participants,' 'pregnant individuals,' 'pregnant patients,' etc, as appropriate." This same line of reasoning should apply to all studies on sex-related diseases or conditions; prostate, ovarian, and breast cancer studies, for instance, should always refer collectively (e.g., in table legends and results) to those included as patients or participants, not as men or women. I have edited studies on breast cancer screening where the entire cohort was referred to as women. Knowing what we know about sex and gender, does this seem like accurate and inclusive language?

I am essentially advocating for never using man, woman, boy, or girl unless 1) it aligns with the gender identity data collected from the patient and 2) the study being reported is relevant to gender (rather than sex).

Pronouns

Self-identified pronouns (aka "preferred pronouns," which is a title falling out of favor) can be defined as the personal pronouns that reflect a person's gender identity (e.g., he/him, she/her, they/them). This information should ideally be collected along with sex and gender identity data. If gender identity is unknown, regardless of the biological sex of the patient, "they" should be used as a pronoun for any patient. "They," for such a simple word, is a hotly contested topic but it is truly a baggage-free term that has no negative connotation, which makes it a perfect pronoun to use in this context. If we added a third pronoun in English, it would uphold the male/female binary, essentially meaning "not male or female." "They" is an opportunity for neutrality and inclusivity. As a gender-identified woman, I'm comfortable being referred to as she or they for this reason.

For those who are having trouble making this change: language is an alive and mutable means of communication. If google and text can become verbs in the past two decades, "they" can be a singular pronoun as well as plural. Besides, consensus usage creates our shared language and "they" is in wide use as a singular pronoun.[9,10] *AMA Style* offers guidance to "Avoid sex-specific pronouns in cases in which sex specificity is irrelevant. Reword the sentence to use a singular or plural non–sex-specific pronoun, neutral noun equivalent, or change of voice; or use "he or she" ('him or her,' 'his or her[s],' 'they or their[s]'). The use of the 'singular they' construction is permitted when rewriting would be awkward or unclear…" (section 11.12.2).[2] However, these guidelines seem confusing to me, especially if we understand pronouns to be related to gender identity instead of sex. The singular they should not just be used when rewriting would be unclear; it should be used 1) when it is a patient's self-identified pronoun and/or 2) as a gender-neutral singular pronoun to avoid making assumptions about gender identity based on biological sex. In my experience, this usage of "they" is not currently being put into standard practice among authors and medical journals.

What Does This Look Like?

The following are examples of these recommendations in practice. In both cases, the sex is known, but in the first instance, gender identity is unknown, and in the second, gender identity is known.

> A 35-year-old female patient presented with… and underwent brain MRI for … At the 4-month follow-up, they were seizure free.

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> A 45-year-old intersex patient presented with gastrointestinal blockage. After …imaging, he was determined to have stage 4 ovarian cancer.
>
> Overall, 100 patients (mean age…; 98 female and 2 intersex) were included for breast cancer screening with perfusion imaging.

Why This Matters

Accurate and inclusive language can allow for more specific research findings and subsequent applications, improve health outcomes for patients, and foster health equity. It's my intention that these thoughts and suggestions will increase awareness among authors and editors and encourage the broader adoption of inclusive sex and gender language in medical and science publishing, as well as stimulate the conversation as new guidelines are drafted by the style arbiters. Inclusivity begins with how we say the words, and how we say the words begins with how we think.

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Letter in Reply to "Thoughts on Sex and Gender Inclusive Language in Medical Publishing"

Stacy L Christiansen and Tracy Frey

We are writing to respond to the article by Ritchie Johnson originally published online in July 2022.[1] We acknowledge their interest in and efforts to discuss an important issue, namely the description of sex and gender in medical journal articles. The current guidance in the *AMA Manual of Style* recommends the following:

> Sex *refers to the biological characteristics of males and females.* Gender *includes more than sex and serves as a cultural indicator of a person's personal and social identity. An important consideration when referring to sex is the level of specificity required: specify sex when it is relevant. In research articles, sex/gender should be reported and defined, and how sex/gender was assessed should be described. In nonresearch reports, choose sex-neutral terms that avoid bias, suit the material under discussion, and do not intrude on the reader's attention.*[2]

We wish to address a few of Ritchie Johnson's specific references to the *AMA Manual of Style*.[2] First, while there is a brief mention of our ongoing efforts to revise the section on inclusive language regarding sex, gender, and sexual orientation, Ritchie Johnson points out several places where the current guidance is unclear or not comprehensive. We are aware of the need for more robust guidance, examples, and discussion regarding sex, gender, and sexual orientation as well as the need to address nonbinary and gender diverse identities. A revision of this nature takes a good deal of time and research, as we learned in completing the major update regarding the reporting of race and ethnicity.[3] Our revision is in process and many of the points raised by Ritchie Johnson will be addressed in the forthcoming update. For example, the following interim guidance appears in the Instructions for Authors of *JAMA* and the JAMA Network journals[4]:

> *The term* sex *should be used when reporting biological factors and* gender *should be used when reporting* gender *identity or psychosocial/cultural factors. The methods used to obtain information on sex, gender, or both (eg, self-reported, investigator observed or classified, or laboratory test) should be explained in the Methods section. The distribution of study participants or samples should be reported in the Results section, including for studies of humans, tissues, cells, or animals. All participants should be represented, not just the category that represents the majority of the sample (unless the study concerns a disease or condition relevant to a single sex, such as prostate cancer). Studies that address*

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pregnancy should follow these recommendations, and if the gender identity of participants was not assessed, use the terms "pregnant participants," "pregnant individuals," "pregnant patients," etc, as appropriate.

Ritchie Johnson notes that when "the biological sex of a patient is known…it should be reported accordingly" and that more precise, self-reported data are needed. We agree, as noted in our interim guidance cited above, and it is certainly within the purview of style manuals and journal editors, as well as research funders, to encourage researchers and authors to collect and report such data.

The language used to describe study participants in the medical literature is of paramount importance, which is why the *AMA Manual of Style* committee is working to develop comprehensive, consistent, and sensitive guidance in the ongoing revision. We will have our draft updated guidance reviewed by experts on diversity, equity, and inclusion to ensure we recommend using clear, consistent, appropriate, and inclusive language and we invite readers of this letter to provide feedback.

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Acknowledgment

We thank Annette Flanagin, RN, MA, Executive Managing Editor, *JAMA* and JAMA Network, and committee member, *AMA Manual of Style*, for her thoughtful comments on this letter.

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Cascading Workflows and Preprints

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Allison Leung
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American Chemical Society
Washington, DC

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Figure 1.

The world of preprints and preprint servers is continuously evolving to meet the needs of researchers, offering new services and pathways tied to traditional journal publishing. Some preprint servers are now utilizing artificial intelligence tools that provide language editing, image manipulation checks, and reference formatting for added quality assurance. With these integrations and the ease of online discovery, preprints are a viable source of new scholarship. Many journals have adopted formalized pathways for authors to transfer their work from a preprint server to a journal submission site. However, it is becoming increasingly common for journals to allow authors to transfer their submitted manuscripts to a preprint server. In this session, three industry professionals discuss models and workflows for preprint transfers.

Tony Alves, Senior Vice President of Product Management at HighWire Press, began by providing an overview of the Manuscript Exchange Common Approach (MECA)[1] and its role in facilitating transfers. MECA, a National Information Standards Organization (NISO)-recommended practice, is a documented methodology describing how a software system should structure, assemble, and transmit files in a package "for transferring research articles from one system to another, so that the different systems don't have to develop multiple pairwise solutions each and every time a system needs to talk to another system."

According to Alves, who serves as co-chair of the NISO Standing Committee for MECA, the "primary objective was to alleviate author frustration [as] authors are often frustrated by redundancy of effort" (Figure 1). With that in mind, the NISO MECA Working Group designed a protocol that would transfer the files and minimal data needed to start a submission record, as well as transfer the reviews, which would help to alleviate reviewers' frustrations over time wasted. The MECA team defined what files and data could be transferred but left it to the journals and authors to determine what was transferred.

MECA currently facilitates transfers between journals, between preprint servers and journals, and between journals and third-party production vendors, repositories, and other author-centered services. Still, in recognition of changing demands and technologies, the Standing Committee continues to augment its initiatives and investigations into application programming interface (API) solutions for transfer and peer review data communication protocols.

Allison Leung, Manager of Product Development at the American Chemical Society, next discussed transfers from ChemRxiv, a preprint server that is co-owned and co-managed by five different chemical societies from around the world. Launched in 2017, ChemRxiv has received over 12,000 preprints, which have been viewed or downloaded over 25 million times.[2] Each preprint that is submitted to ChemRxiv is assigned a digital object identifier (DOI) and initially screened by a curator to ensure that it is chemistry related and scholarly in nature.

The direct journal transfer process from ChemRxiv launched in 2018 and has seen exponential growth in use. Leung shared several author benefits of the transfer process, including saving time and simplifying the journal selection process, as well as important journal benefits such as improved author experience and increased exposure. There are currently 150+ journals to which authors can transfer their ChemRxiv preprint, and the list is expanding. To transfer a preprint to a journal, authors simply select their preferred journal, confirm their selection, and then complete the submission upon receipt of an email from the receiving journal. If authors try to transfer their preprint to multiple journals simultaneously, they receive a pop-up warning message. Once the authors have confirmed their journal selection, the files are exported from ChemRxiv and uploaded as a package to the journal's FTP site, which is then ingested by the receiving journal (Figure 2). The package includes the basic metadata, the manuscript PDF, and the supplemental information, which can be in any format.

While the transfer process is relatively straightforward for the authors, there have been some challenges that

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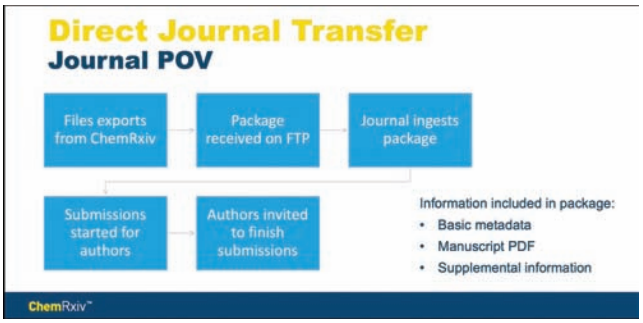

Figure 2.

ChemRxiv and its partner journals have had to consider during implementation. Leung noted that there are different submission systems between journals, journal submission forms are generally customized, and preprints collect less information than journal submission forms. Still, the direct transfer process makes it easy for authors to transfer their ChemRxiv preprints to a journal for consideration and further distribute their work through scholarly publishing.

In the closing presentation, senior product manager Sven Molter described the preprint options and configuration process at PLOS, which includes 12 journals spanning in scope across the portfolio. PLOS takes a holistic approach to open science through published peer review, protocols, data policy, credit, preprints, and methods.[3] Molter contends that authors benefit from preprints in terms of access, transparency, and inclusivity as they "create a more efficient open peer review process, rapid dissemination of results" and more. Furthermore, preprints serve the field by allowing for community feedback, inclusion, and unlimited and timely updates.

PLOS offers the following three different transfer options (Figure 3):

Figure 3.

1. Authors can directly transfer their preprints from preprint servers bioRxiv and medRxiv to a PLOS journal.
2. At submission to a PLOS journal, authors can opt in to have their manuscript posted to bioRxiv or medRxiv, also known as "facilitated posting."
3. Authors can share the DOI to any specialized preprint server in which they deposit when they submit to a PLOS journal.

Molter outlined some strategies that PLOS implemented when integrating the transfer process into the journal submission form. The submission form leverages the data already collected during the preprint submission and uses nested questions so that authors do not have to answer duplicate or unrelated questions. The submission form builds upon the authors' previous questions to ask only those that are applicable. For example, authors are initially asked if the manuscript has been posted as a preprint and, depending on that response, different follow-up questions are presented. PLOS also uses the submission form as an opportunity to educate authors on preprints, finding that balance between providing information and not overwhelming authors with a text-heavy form.

In order to develop that streamlined submission form, there are some hurdles to the configuration process that Molter recommends addressing in advance. Some of the challenges include working within the limitations of the submission system (e.g., how data links are scripted in the metadata) and negotiating the language used to make sure that the journal and preprint server are on the same page and have what they need. Molter suggests enlisting a professional project manager to coordinate between the journal team and the preprint server team, building out a project timeline that includes dedicated time for review and feedback, reviewing the technology early (e.g., describe use cases, make API materials available to the engineering team early to identify gaps and needs), and engaging with the marketing team to promote preprints and transfers to authors.

Looking ahead, PLOS seeks to work with additional servers to support facilitated postings in diverse topics and regions. PLOS has also experimented with incorporating preprint feedback into the traditional journal review process, with varying degrees of success, but plans to consider other experiments in the future.

As preprint transfers and cascading workflows continue to develop in parallel with the research and publishing landscape, the innovations to come will be added benefits to authors and journals.

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Preprints 101

SPEAKERS:
Dr. David Riley, MD
Editor, *Permanente Journal*

Dr. Clare Stone, PhD
Medical Content Editor, Social Science Research Network (SSRN)

REPORTER:
Ashley Ketelhut
Managing Editor
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Dr. Riley provides insight into the benefits of preprints to inform clinical practice guidelines and the use of preprints for government-funded research. Dr. Stone explores the nature of preprints, how they have evolved, the importance of transparency, and the value preprints bring to scholarly literature. She also shares insight on the preprint services SSRN provides to researchers.

During the COVID-19 pandemic in particular, there has been a need for rapid and frequent communication as new data has come to light. Preprints can help fill that gap and act as a valuable tool and resource to the larger community.

This webinar highlights how preprints have transformed from being static pre-publication articles, to being dynamic documents that have been integrated directly into journals' editorial workflows. With this collaboration, journals and preprint servers can provide authors with a more seamless process to getting their work published and disseminated.

Preprints are mainstream and here to stay; watch the webinar to see how these platforms integrate into scholarly communication. This webinar would be of interest to those unfamiliar with preprints, or individuals working on journals who are looking to add preprints into their editorial workflow.

The webinar recording is available for purchase at https://www.councilscienceeditors.org/resource-library/archive/past-webinars/webinar-preprints-101/

Keynote: The Art of Nontraditional Science Communication: Taking Joy in Being Curious About Our World

SPEAKERS:
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REPORTER:
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When Zoe Swann steps onto the stage at the 2022 CSE Annual Meeting, she is not alone. This year's keynote speaker is accompanied by a strange looking instrument, somewhere between a guitar and an oddly proportioned lute. "It's actually the body of a [medieval] lute, which a luthier turned into a baritone ukulele for me," she later explains. For now, it serves as the kickoff salute to the annual meeting, as Swann sings a soulful love song about proteins and amino acids. The crowd erupts as she finishes and places the delicate instrument down with a wide grin. "Today I'm going to talk about what I just did: communicating science in rather nontraditional ways."

Thus, the tone is set for a talk on nontraditional communication from a (rather nontraditional) keynote speaker. Swann is young, an early career scientist, and one of the only students at Arizona State University to move from her bachelor's to PhD in under 4 years. As she speaks, her eyes light up—you can tell this is a subject she is passionate about. "That was fun!" she exclaims, and indeed it should be. For Swann, science is a joyful subject she has loved since childhood, something that should be filled with wonder and surprise.

However, this joy often gets lost.

Swann notes that studies have shown graduate students are 6 six times more likely to suffer depression and anxiety than the wider population. This is even more pronounced in science, technology, engineering, and mathematics (STEM) students, with a study from Berkely finding that 48% of STEM PhDs suffered from depression and career dissatisfaction. Swann can relate, having experienced disappointments and hurdles that almost stopped her in her tracks. After one particularly devastating setback, it took her several months to reorient and successfully defend her dissertation proposal. Even then, she found that she felt empty. "Part

Zoe Swann

of the problem," she says, "is that it feels like our work will never mean anything." But Swann pushes back, asking an important question: Why? Why the existential crisis and disillusionment? Why isn't science fun?

Nontraditional science communication might just be the most powerful antidote to anxiety-fueled burnout, Swann suggests. Communication is all about connection, and when you connect in nontraditional ways, you can share the passion and excitement of discovery. For Swann, this is key. "Even though it so easy to become disillusioned with our work, we shouldn't forget the toddler-like discovery; the magic of curiosity."

Thinking outside of the scientific communication box has other benefits. It often makes science more accessible, through technologies such as screen-readers and adaptive learning devices. Swann herself invented a medical device, consisting only of a cell phone, amplifier, and headphones, that enables even the most severely disabled stroke patients to communicate. Swann beams while relaying the story of a nonverbal stroke patient telling her husband she loves him for the first time since her stroke.

Nontraditional communication can also bring more diversity to the sciences. While teaching a cadaver lab at Arizona State University, Swann saw evidence of this. A group of non-STEM night students preferred games and

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interactive class periods to lectures. Many of these students are now pre-med.

By communicating nontraditionally, the love of science can be shared with a wider audience. In turn, this may prevent gatekeeping and could help to restore trust of the scientific community.

But how do we science communicators and members of CSE engage communities? Swann suggests starting with early career researchers like herself. "We only know one path," she maintains, "post-doc, then land a faculty position if we're lucky." Many early career scientists become unemployed, not because they aren't employable, but because they do not know of the opportunities available to them. Swann recommends hosting job fairs or visiting campuses and providing information about the work science communicators do, both in and outside of academia.

Providing nontraditional ways to collaborate with early career scientists can also build connections and foster future opportunities. While on the brink of burnout, Swann rediscovered her love of science through a "Dance Your PhD" contest held at her school. She describes it as one of the silliest things she has ever done, but it reminded her of her childhood passion. "By giving us opportunities to engage that way," she insists, "you'll change our lives."

A major opportunity for connection and growth lies in peer review. Swann was never formally taught how to do peer review but discovered that she really enjoyed it. Building peer-review training opportunities for scientists while they are still in grad school fills a great need in science communication while teaching scientists how to use their skills in new ways.

Outside of early career scientists, Swann recommends engaging the community through events targeted to different age groups. Write lay articles for kids. Create writing contests on scientific themes. Arizona State University has programs dedicated to teaching STEM in prisons and helping STEM-interested foster youth transition into university. One of Swann's favorite opportunities is the annual "Earth and Space Exploration Day" held for kids of all ages. By providing these events to the community, scientists and science communicators allow themselves to have fun with science. It can help bring back the joy of the work.

By thinking outside of the box and allowing for greater flexibility of language and style, science communicators can promote accessibility, diversity, and community-wide engagement. Rather than just disseminating information, they can spread the joy and wonder of discovery through connection. "The pillars of happiness," Swann concludes, "are family, friends, and service. Service in science is a fundamental part of science itself … let's work to be a source of connection and change … this is my call to action."

Picking up her lute once more, Swann closes with the song that reignited her love for her work. In her music, her passion for science is evident. Connection is the key to a successful scientific future. All it takes is a little joy.

Plenary: Recombinant Scholarly Publishing: Challenges, Trends, and Emerging Strategies

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Ithaka S+R

REPORTER:

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JAMA Network

If you're a member of CSE, you may be familiar with *The Scholarly Kitchen*,[1] the official blog of the Society for Scholarly Publishing, which has established itself as a rich repository of information and an open forum for dynamic discourse that promotes collaborative, educational encounters among scholarly publishing professionals. Among the *Scholarly Kitchen*'s many designated "chefs" (i.e., regular writers) are Lisa Janicke Hinchliffe and Roger Schonfeld, both of whom possess a uniquely comprehensive, global perspective spanning the fields of scholarly publishing, scientific research, communication, academic libraries, and higher education. As joint plenary speakers at the 2022 CSE Annual Meeting in Phoenix, Arizona, Hinchliffe and Schonfeld shared their insights and observations about several recent trends and trajectories they've identified in the scholarly publishing industry.

Hinchliffe began the tandem talk by framing it within the concept of *future thinking*—the goal of which is not necessarily to predict the future, but rather to engage in strategic dialogue and raise informed, enterprising questions that will serve to sculpt the world in which we eventually live. Doing so, she said, illuminates the policies and strategies that factor into a desirable future, with the caveat that a desirable future for one party may be unappealing to another. In addition, she warned against strategies that conflate idealism with reality; although idealism has its place in future thinking, a strategy for a future that is not grounded in realism may decrease the likelihood of that future coming to fruition.

Hinchliffe opined that crafting a potential future requires a thoughtful assessment of current trends—including available resources, discernable risks, and systemic pressures—as well as their potential implications. Trends are not necessarily specific to a particular initiative or institution and can even be in conflict with one another; however, they share a commonality in the signals that reveal their nature and their trajectory. According to Hinchliffe, developing strategies, policies, and initiatives based on analyses of these trends increases the "probability, possibility, plausibility, and feasibility" of achieving a future that will benefit the scholarly publishing community at large.

Hinchliffe then referred to 7 current trends she and Schonfeld have been observing in the scholarly publishing industry. She discussed the first 3 of these trends before yielding the podium to Schonfeld to address the remaining 4.

1. The Age of Syndication Has Begun

The pieces of an infrastructure to support syndication of scholarly publishing content were put into place a few years ago: Springer Nature syndicated content to ResearchGate, and Rockefeller University Press and Wiley soon followed suit. In addition, both Wiley and the Royal Society of Chemistry have syndicated content to ScienceDirect, which struck Hinchliffe as remarkable: "If I had told you 5 years ago that Wiley would be serving up their content on Elsevier's platform, would you have believed me?"

2. Large-Scale Approaches to Infrastructure Are Maturing

Noting that content syndication is a smaller part of the larger-scale industry infrastructures being developed, Hinchliffe observed that infrastructures are maturing among for-profit and not-for-profit enterprises. Regarding the former, she cited STM Solutions,[2] a next-generation collaborative that was established in response to the seemingly exponential appearance of multiple tool-based collaboratives, such as CrossRef and ORCID. In the not-for-profit domain, Invest in Open Infrastructure recently issued a White Paper that attempts to define *infrastructure*,[3] The Knowledge Exchange recently released a report on alternative publishing platforms,[4] and the library platform group from The Educopia Institute is investigating how not-for-profit organizations can compete with scholarly publishing preprint services.

3. The Business Models for Open Access Are Solidifying

Article processing charge-based fees have become the basis for transformative and so-called "pure publish" agreements,[5]

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indicating a trend toward managing Open Access (OA) fees at an institutional level. And although some nascent small-sponsorship OA models have emerged, Hinchliffe noted that they cannot match the scale of output seen in the global scholarly publishing industry—meaning authors will have fewer OA choices within institutional infrastructures. In addition, alternative models such as Green OA will become deprecated, given that the very environment within which they operate pressures publishers to implement pay-to-publish rather than pay-to-read models. Finally, the intense policy pressure in Europe owing to Plan S forces publishers to offer transformative, institutional-level agreements—a trend that is particularly challenging for smaller publishers, who may need to partner with editorial service organizations to approach the scale of larger publishers.

4. Scientific Openness Is Receding from its Global Peak

Schonfeld began his segment by highlighting a trend toward promoting science as an essential, global public good, specifically citing the United Nations' sustainable development goals for scientific research. Over the last 20 years, he said, we've moved away from thinking of the scientific enterprise as a distinguishing characteristic of individual nations and have come to view it as a global initiative, one in which openness is an essential component. Yet the last 5 years have seen a shift in this mindset. Geopolitical tensions have spilled over to the research enterprise and higher education, causing substantial disruptions in scientific collaboration and scholarly communication.

5. Trust in Science Is Eroding

In roughly the same period, Schonfeld noted, science has become a tool of politics in several countries, with politicians and media outlets using—and misusing—issues such as climate change and COVID-19 vaccinations to sow seeds of doubt about the scientific enterprise. Yet he stressed that this phenomenon of mistrust is not strictly external to the scientific community. Citing preprints and OA as vectors for misinterpretation of scientific research among scientific and nonscientific audiences, respectively, as well as the still-prevalent fraud and misconduct within the scientific community, Schonfeld acknowledged the natural if not unforeseen consequence of the objective observer who asks "Should we #TrustScience?" Finally, he said, there is evidence that hostile nation states have used the scholarly communications infrastructure to introduce misinformation and disinformation into our political discourse, further eroding public support for science.

6. The Scholarly Record Is Fragmenting

Scholarly publishers have historically considered the article PDF as the version of record—the "canonical object," as Schonfeld put it—and have resisted viewing supplemental materials (such as data sets, trial protocols, and software packages) as being of equal significance. Yet these separate research objects are increasingly coalescing to create a more cohesive, machine-interpretable scholarly record, leading Schonfeld to envision a scenario in which the human-readable element of a given article constitutes a small percentage of that article's content. It will be interesting, he said, to see whether the historical "one-to-many" relationship between an article and its related research objects trends toward a "many-to-many" relationship over time.

7. A Different Type of Merger Has Come to Characterize the Industry

Schonfeld noted that for some time, mergers and acquisitions occurring within the scholarly publishing industry largely involved competing publishers acquiring and merging with one another; however, such transactions have become increasingly rare. Instead, larger publishing houses have been investing in expanded services components of their businesses, acquiring organizations that support universities, societies, funders, and users who engage with the scientific community. Schonfeld attributed this "substantial trend" to a shift in strategy among publishers to distinguish themselves from one another by way of the extended services they provide, saying that he expects these types of investments to continue to expand and diversify in the future.

The Q&A session that followed the talk was rife with astute questions that prompted compelling responses from both Hinchliffe and Schonfeld. As so often happens, some of the questions begat additional questions, supporting Hinchliffe's earlier emphasis on the importance of analyzing current trends so that we might make decisions that yield a desirable future.

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Engaging Early Career Researchers

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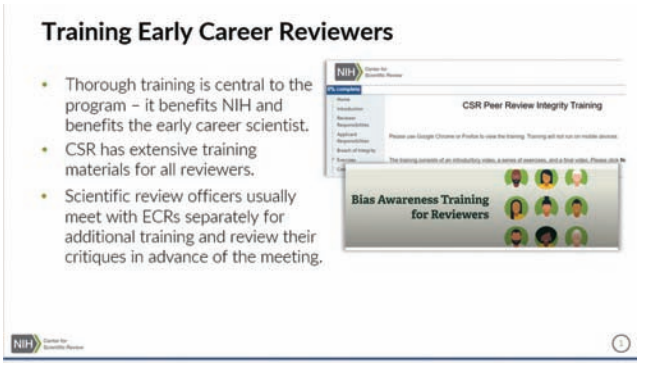

Figure 1.

The "Engaging Early Career Researchers" panel centered on the importance of attracting and retaining junior faculty both in research and in the process of scholarly publishing. The panel consisted of speakers all deeply involved with programs and initiatives for early-career researchers (ECRs).

Dr Kristin Kramer opened the session by explaining the scope of the National Institutes of Health (NIH) Center for Scientific Review (CSR), which is to provide first-level review of NIH grant applications. A pool of over 20,000 reviewers evaluates more than 66,000 applications annually. Dr Kramer explained that the process of reviewing grant applications varies from that of manuscripts for journals in 2 key ways: 1) the primary audience for the reviews is the NIH, as the goal of the review is to identify the highest impact science for funding consideration at the next stage of review and 2) the process is not iterative—resubmissions do not routinely go back to the same reviewers.

The NIH CSR has an early-career reviewer program; the goal of this program is to enrich the peer-reviewer pool and to provide first-hand review experience to early-career scientists as they prepare their own grant applications. Dr Kramer also explained that training is central to the program; there are extensive training modules and Scientific Reviewer Officers who meet with ECRs to provide additional training (Figure 1).

Outcomes of the program show that recruitment of ECRs increases panel diversity and that success rates for ECR grant applications are promising. Surveys of ECRs in this program show that, overwhelmingly, they feel prepared to develop their own grant applications. Dr Kramer concluded her talk by noting some of the challenges of the program, including recruiting and managing expectations.

Dr Kristin Inman followed Dr Kramer with a talk on the ECR initiative of her journal, *Environmental Health Perspectives*, which is a self-published Diamond Open Access journal. It is also a leading journal in the field of environmental health sciences. The goals of the ECR initiative are to engage the environmental health sciences ECR community and foster the development of quality reviewers, editors, and authors. To achieve these goals, the journal first formed an early-career advisory panel, which provides input for the journal.

Specific components of the initiative include a mentored review program, an ECR reviewer database, ECR-mentored writing opportunities, inclusion on an invited review advisory committee, and a Twitter campaign called #TuesdayTips that shares resources relevant to ECRs. ECRs can also contribute content to the campaign (Figure 2). Dr Inman shared other ECR-related initiatives that are in development including a robust reviewer resource page that contains a lot of valuable information for ECRs, an editor-in-training program, and digital

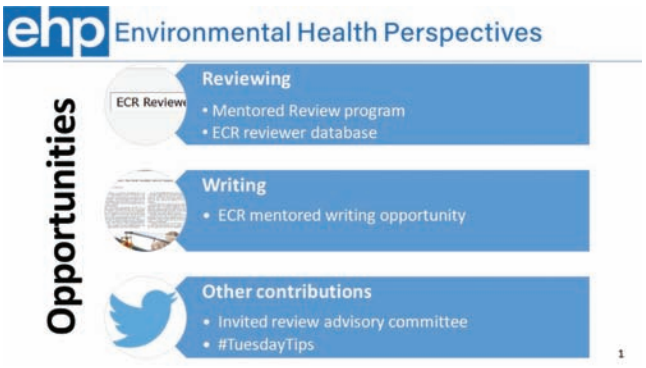

Figure 2.

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learning modules. Similar to Dr Kramer, Dr Inman highlighted some challenges of the journal's ECR program including determining how to measure success, communicating with a diverse group, and recruiting and tracking ECRs.

Dr Max Aung rounded out the session by explaining his experience with various ECR programs he has been involved with as an ECR. For the Robert Woods Johnson Research Scholar Program, Dr Aung was provided with 4 years of support, including funding and professional development, health policy training, workshops, science communication training, and ongoing mentoring. For the Agents of Change program he participated in, he engaged in a 9-month fellowship and was afforded the opportunity to publish a first-person narrative essay. Additional elements of the program are the ability to participate in and produce an episode of a podcast and develop a scientific translation product focused on educating community groups and policymakers. Long-term hallmarks of these programs included the development of long-lasting networks, publications, podcasts, webinars, and essays.

Dr Aung concluded his talk by sharing his thoughts on how journals can help ECRs. His suggestions include developing

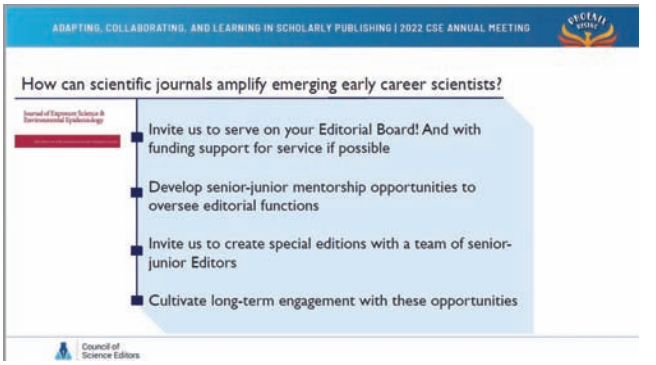

Figure 3.

senior/junior mentorship opportunities to oversee editorial functions and inviting ECRs to create special editions with a team of senior editors (Figure 3). He believes these types of opportunities will result in long-term engagement with journals by ECRs.

The session concluded with members of the audience sharing their experiences with ECRs at their journals.

Approaches to Advancing Diversity, Equity, and Inclusion in Journal Publishing

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At the CSE 2022 Annual Meeting, Leonard Jack, Jr, PhD, secured and led a panel of four journal Editors-in-Chief (EICs) who spoke on establishing and sustaining the expansion of diversity, equitable decision making, and a culture of inclusion in scholarly communications and between journal publishing professionals. These four EICs shared diversity, equity, and inclusion (DEI) efforts and approaches, particularly addressing the issues of racism and sexism, being implemented at their respective journals.

Dr Jack, co-chair of the CSE DEI committee, introduced the panel in person, while the rest of the panelists joined remotely. Dr Jack, EIC of *Preventing Chronic Disease: Public Health Research, Practice & Policy* (PCD), a journal housed in the Centers for Disease Control and Prevention (CDC), introduced himself and the other three panelists, Sumi Makkar Sexton, MD, EIC of *American Family Physician* (AFP), Jesus Ramirez-Valles, PhD, EIC of *Health Education & Behavior* (HE&B) at the Society for Public Health Education, and Alfredo Morabia, MD, EIC of the *American Journal of Public Health* (AJPH).

Dr Sexton started the session off with a presentation on anti-racist publishing in family medicine in her role as EIC at AFP, a continuing medical education journal for primary care physicians; she also manages a private practice caring for patients in Virginia. Given AFP's wide influence in the practice of medicine, she recognized the great importance of better integrating DEI into journal operations. Dr Sexton began intentional DEI efforts for AFP in 2020 to address racism and social determinants of health, collaborating with 10 other family medicine journals doing similar work. This led to their joint statement for DEI accountability and partnership. Since then, AFP has taken numerous actions, not only engaging in conversations but also hiring a DEI associate editor, recruiting diverse fellows, residents, and students, holding regular DEI guideline development meetings, and putting out calls for papers on both race-based medicine and mentorship. DEI goals for the AFP journal include creating space for dialog and learning, keeping the focus on the patients and communities of the journal's readers, seeing integration of DEI in clinical practice, focusing on race and racism, diversity of staff, editorial board members, authors, and peer reviewers, and eventually, no longer needing a DEI editor or consultant as DEI will be ingrained. These efforts have come with challenges including collecting demographic information from and the high learning curve for editors, authors, reviewers, and readers, the lack of specific DEI guidelines or standards, difficulty finding authors and reviewers with expertise to write and/or review, reader resistance, and keeping up the momentum of DEI efforts that started in 2020. Dr. Sexton ended by noting that DEI efforts, while challenging and time consuming, are part of a good struggle for worthy outcomes and the best care of patients.

Dr Sexton introduced Dr Ramirez-Valles, who began by noting the considerable progress made on the issues of sexism and racism since the 1990s. Regarding HE&B's publications, collaboration with his journal colleagues through conversation has played a major role for Dr Ramirez-Valles in addressing DEI in journal publication. HE&B's recent work has included editorial board composition, now composed of 50% Scholars of Color (SOC), and 68% women, a stark contrast to its makeup previously. HE&B also uses special issues to open up the journal to SOCs and students, putting out a very successful call for papers by SOCs in 2021. The editorial board of HE&B put out a call for papers for students to address its weak journal pipeline. As EIC, Dr. Ramirez-Valles explained that working closely with the editorial board, and the board of trustees who help select them, is crucial for getting their support on DEI

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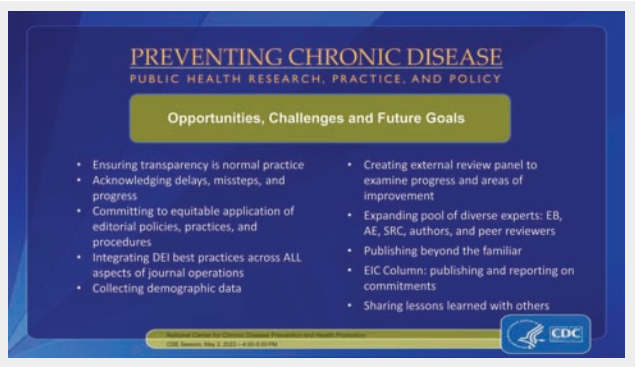

Figure. PCD opportunities, challenges, and future goals for DEI, spring 2022.

initiatives. He noted that an important step is reporting the demographic makeup of the journal's decision-making body, for example, on editorial board or trustee presentations. Major challenges to HE&B's DEI efforts include collecting demographic data on authors, without which DEI problems are hard to identify. Also, the pipeline of scholars does not include many individuals outside of large institutions and universities, out of which currently relatively few SOCs find their way to the journal. To gather an appropriately diverse and inclusive board, recruitment from universities, societies, and the National Institutes of Health has been considered. The opportunity to join the Coalition for Diversity and Inclusion in Scholarly Publications (C4DISC) has been beneficial for HE&B to participate in the international forum it provides and its work on useful anti-racism guidelines.

Dr Ramirez-Valles then introduced Dr Morabia, who began by presenting the state of AJPH, an independent journal with in-house production services. AJPH received an increased immediacy index and citation rate in 2020 as a longstanding yet unintentional pioneer of DEI publications. During the COVID pandemic, AJPH made the public health message clear that "we aren't all in this together." AJPH has been active in addressing DEI issues for many years including publishing on the intersectionality debate, and equity and diversity in HIV/AIDS, social justice, and public health. AJPH has published on race/racism significantly more than competing journals particularly over the last 5 years. Some factors that may contribute to AJPH's success in this area may be its priority on social determinants of health, editor diversity (regional, and by qualifications), and its collaboration with grassroots and frontline organizations. As DEI efforts can always be improved, Dr Morabia plans to continue to advance DEI in publications by learning and sharing what AJPH is doing right, training reviewers and authors, and exchanging experience with other journals and those who work in science.

Dr Morabia introduced Dr Jack, who began his presentation by emphasizing DEI's relevance to all journal processes, including who reviews submissions and how many papers are accepted. At PCD, his approach to DEI began by opening the journal up to critique, bringing in an external panel to review peer-review practices, article types, and mission statements. The panel identified the need for a shift from being risk factor-centric to focusing on nonindividual determinants of health. Work done to accomplish this shift included creating editorial board focus groups and reviewing journal statistics. PCD issued a position statement as a public commitment in August 2021 that detailed its current state and future goals (Figure). Dr Jack acknowledged the challenge of putting out content from within a long-entrenched publishing model that has not historically considered DEI. Dr Jack gave the advice to, "Become open to new methodology," and "think differently and out of the box" regarding DEI initiatives. He noted that "individuals who are courageous enough to do that" have been early career professionals and students, who need to be included in these conversations. He aims to steer PCD to focus more intentionally on racism in all its forms and health. He noted that transparency of intention must be a normal practice, as well as a capacity to receive difficult feedback. He ended his presentation by noting that a journal's policy may not always cover DEI concerns in practice. Monitoring and acknowledgement of inconsistent policy application should be a constant task for journals. For example, inequitable, often unintentional practices such as referring one author to the website versus another author receiving journal information directly due to a board member or editor connection must be considered. On an ongoing basis, Dr Jack publishes an Editor-in-Chief column to report on DEI progress made with the journal, even when only to acknowledge delays or missteps. He sees the column as an opportunity to be unafraid and committed to doing better in the DEI space.

The presentations were followed by a Q&A session touching on demographic data collection and survey response rate difficulties, as well as the U.S.-based nature of the current racial discourse. The session ended with a reminder to all publishing professionals to keep talking to each other about what works and doesn't work for journals incorporating more diversity, equity, and inclusion in their publications.

De-Siloing: What Breaking Down Barriers REALLY Looks Like

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Over time, organizations like professional societies can develop "silos" where departments start to function independently with little or no interaction or collaboration with each other. Since these silos can lead to ineffective results or departments working at cross purposes to each other, there is a tendency to approach organizational silos as structures that need to be dismantled completely. However, as presented by Angela Cochran and her fellow speakers in this session, expanding on her blog post in SSP's *The Scholarly Kitchen*, "Don't Bust Silos When a Little Remodeling Will Do,"[1] it can be more constructive for departments to invite collaboration and learning.

To start, using metaphors of remodeling, Cochran gave some tips for improving organizational silos into being more welcoming and productive. Next, Erin Landis (previously of the American Gastroenterological Association [AGA]) expanded on this by giving specific examples of each of Chochran's steps. Finally, Jennifer Regala gave further examples and tips for departments working together toward a common goal.

As Cochran pointed out at the beginning of the session, each department has its own experts with specific skill sets, so there is no need to break down silos completely. Instead, she recommends a little remodeling.

Step 1. Add Windows

Explain what you do and learn what other departments do. Haven't we all said at one point or another, "What do they do over there? They can't be *that busy*!" Landis gave the example of having 15-minute all-staff meetings with departmental reports so everyone could learn what was going on in other departments. This allowed staff to connect the dots, identify areas for collaboration, and spot problems that needed attention.

Step 2. Add Doors

Invite people from other departments, show off your expertise, and invite others to your department's meetings. For example, as Landis discussed, hosting brown-bag lunches and informational sessions can help build connections, understanding and appreciation of work, and confidence across departments.

Step 3. Build Bridges

Build two-way communication, collaboration, and trust-building. The *AGA Clinician's Companion* was Landis's example for this one. To ensure the success of this quarterly, digital digest of the top clinical research from the AGA's journals, cross-departmental collaboration, communication, and coordination were critical. The project team used Microsoft Teams to manage the project, which resulted in a well-thought-out new product, hands-on knowledge of other departments, and lessons learned about cross-divisional projects.

Bonus Step. Heavy Construction

Foster social interaction, share goals, identify common issues. This is an ongoing process. Here Landis talked about AGA's Project Alpha, an organization-wide initiative that involved all departments. Project Alpha led to the AGA staff having a shared goal, which resulted in new connections and opportunities to show off their particular expertise. As a result, new leadership opportunities were formed, giving staff the chance to use skills they might not normally get to use.

To summarize, Regala said that "change starts at the top and must be embraced by all"—coworkers need to

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get to know one another and each other's roles in order to effectively work together toward a common goal. Looking for opportunity, allies, and connections is key. Regala gave an example of *The Journal of Urology*, the AUA's flagship journal. Several departments (Guidelines, Update Series, Membership, Marketing, Communications, Office of Education, and Office of Research) worked together toward the common goal of continuing to promote the journal.

Other examples of departments working together on common goals include the AUA's first-ever publications booth at the annual conference, indexing and marketing Urology Practice, and launching a new open access journal, *JU Open Plus*. Learning from the past and moving into the future was highlighted at the end of Regala's segment, as we extend bridge building to the scholarly publishing community.

In a brief group discussion at the end, the speakers touched on the importance of education and explaining, learning from the past and moving toward the future, and having a sense of community. The result of this metaphorical remodeled silo is very cool-looking, indeed!

Reference and Link

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Book Review: *A Practical Guide to Scientific and Technical Translation: Publishing, Style and Terminology*

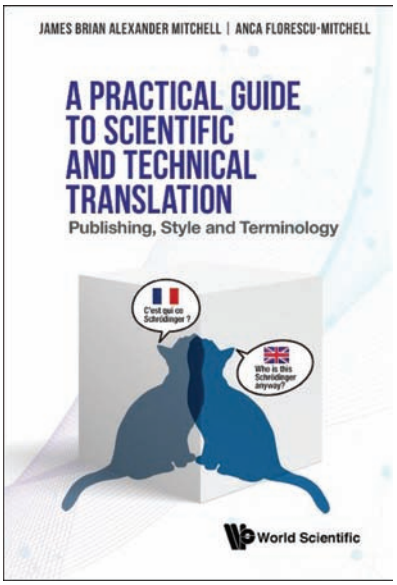
Janaynne Carvalho do Amaral

A Practical Guide to Scientific and Technical Translation: Publishing, Style and Terminology. James Brian Alexander Mitchell and Anca Irina Florescu-Mitchell. London: World Scientific; 2022. 200 pages. ISBN 981124314X

In a conversational tone and sometimes being repetitive, which shows a fear that the readers do not grasp the real goal of *A Practical Guide to Scientific and Technical Translation: Publishing, Style and Terminology* or do not understand clearly their advice, James Brian Alexander Mitchell and Anca Irina Florescu-Mitchell use their experiences as researchers, reviewers, proofreaders, and translators to give detailed instructions for writing in English and producing technical and professional translations. Mitchell is a native English speaker who translates from French to English, and Florescu-Mitchell is a non-native English speaker who translates from French to English, English to French, and English/French to Romanian. I write this book review from the point of view of a non-native English speaker who writes my own articles in English and does professional translations from English to Portuguese.

The book is divided into 2 parts. The first part, Direct Authoring, is devoted to helping scientists who are non-native speakers of English to write scientific papers. The second part, Technical Translation for Translators, provides guidance for professional translators of technical writing.

According to the authors, "direct authoring" is when a non-native speaker, after deciding what to write in their paper, starts to write it directly in English. In this first part of the book, Mitchell and Florescu-Mitchell clarified that their goal is to help scientists to avoid making mistakes common to those who use English as a second language, and not to write a grammar book. They use examples in French from their experience working with authors to explain to scientists what to do and not to do in terms of style, grammar, and convention, when preparing a scientific paper for publication. Examples are observing the differences between UK English and U.S. English, the use of contractions, vague words and colloquial language, passive and active voice, present tense, past tense, future tense, gender neutral text, and numbers and units, among other rules. It is very interesting to note how the use of certain words reveals the identity of the author. In the excerpt below, we can see a mistake in a paper written by a French author using a false friend, or words that appear the same way but that have different meanings.



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In English, "realise" means coming to the understanding of something:

"I realise that I have to go to the dentist today so I cannot go for coffee"

In French, this word has a much wider meaning and it is common to see a French person write something like:

"The experiment was realized"

These sentences are completely wrong in English and should read like: "The experiment was performed"

The false friends here are *reáliser* (French) and *realize* (English). It is also intriguing to see that the origin of some grammar mistakes committed by non-native speakers when writing in English are the rules they learn to speak and write in their native language. As an example, let's look at the mistakes in writing in English related to the plurals and adjectives pointed out in the book:

Plurals

This is something that often shows up in articles written by a non-native English speaker. In fact, there are two problems, not using plurals when you should and using them when you should not. In French for example, the "s" at the end of a plural noun is generally not pronounced. It is often found in articles where the French author has thought about what they want to say but when they write it, they forget about the "s" in English because they don't hear it

Adjectives

One of the difficulties that arises when writing in or translating into English is the placement of adjectives where these are placed before the noun in English, while, in French for example, they are more often placed AFTER the noun (there are actually rules, even in French, believe it or not!)

This type of error may cause misunderstandings in a scientific paper and easily reveal to the editor and to the reviewer that the author is not a native English speaker. In the world of scientific publishing, papers written by non-native speakers open the door for publication bias during the peer-review process, showing the connection between both language and identity and language and power.

In this first part of the book, the authors also cover scientific writing style. They provide a good characterization of the scientific style, bringing up its main characteristics such as accuracy, clarity, and readability, and highlighting the importance of the concepts discussed in a scientific article. However, Mitchell and Florescu-Mitchell say:

This does not mean that it has to be written so that everyone can understand it. That is the role of the "popular press". A scientific article has a certain targeted audience who should understand the concepts presented so that they can take in this knowledge and access its authenticity.

Although this is certainly true for some scientific journals, it should be noted that there is a recent push in many scientific journals to make scientific articles more understandable for a wider audience. Examples are the initiatives of the biomedical journals *The BMJ* and *Research Involvement and Engagement* in involving patients in their peer-review process. One of the roles of these patients is to check "the clarity of the reported research and its interpretation to a lay audience."[1] *Research Involvement and Engagement* still asks authors to submit a plain language summary,[2] along with the manuscript and the abstract, to make the paper accessible to patients, reviewers, and to the public.[3] Thus, these bold initiatives are broadening the role of scientific journals, blurring the lines between scientific journals and science magazines, and making the authors write their articles in an understandable way in order to reach a wider audience. This wider audience may be scientists from different fields of knowledge or even non-scientists.

Before I start to review the second part of the book, I would like to comment on the advice given about how to write peer-review reports. In the Reviewing section, the authors talk about the fear of non-native speakers of English of unintentionally insulting the authors of the manuscripts that they are reviewing in the context of the anonymous peer review, mainly when they have to reject a paper. Based on their experience reviewing peer-review reports, some examples were given to deal with this kind of situation:

In one sentence, the reviewers said: "there were too many "useless" details". While this may indeed have been correct, the word "useless" is very strong and perhaps a bit insulting. We recommended that this be changed to: "there were too many details that were not very useful". This softens the tone and allows the author to reflect on whether this statement is helpful. To say that something is "useless" is very final and can put the author into a combative mood for the response.

As we can see, the tone of the report can hurt the feelings of the authors and put them in a bad mood when responding to a review, which may be unhealthy for all people involved in the peer review. Another fear of the non-native speaker is judging the English of other non-native speakers when they themselves make grammar mistakes. As a non-native speaker,

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I would like to add the fear of having your competence as a researcher put in doubt or your report disregarded. That was a case reported to me by an editor of a scientific journal: a non-native speaker of English reviewed an article of a native speaker and this article was rejected. The author was offensive with the editor, questioning the credibility of the journal by arguing why they would select non-native speakers to evaluate their article. To avoid this type of problem, Mitchell and Florescu-Mitchell suggest that reviewers concerned about the quality of their writing ask a professional or colleague proficient in English to check out their English before sending reports. It is a good idea, but sometimes it may be hard to do or awkward in practice. These concerns should be considered when implementing or researching models of open peer review to ensure participation of any interested member of the scientific community or the public and to reflect about diversity, equity, and inclusion in scientific journals.

The second part of the book, Technical Translation for Translators, is divided into sections discussing the essential tools to work as a technical translator, features, advantages and limitations, and technical problems of computer aided translations (CAT) tools, machine translation, translation in specific technical fields, translation of patents, legal contracts with translation agencies, internet searching and terminology, and translation as a profession.

The authors provide a realistic and critical view of the translators' job market, presenting challenges ranging from where and how to find the right terminology for a document to common problems that translators face. However, the authors go beyond the idea that to do a translation is only necessary to find the right terminology. For them, professional translators must understand what they are translating. For this reason, if the translator does not know anything on the subject they were invited to translate, they must decline the invitation to avoid mistakes. Mitchell and Florescu-Mitchell summarize that "technical translation is not about words but about the meaning of words (Definition, Concepts and Content)" and more: "Technical Translation is all about context."

From the experience of the authors doing translations in the fields of Physics, Automotive Engineering, Aeronautical Translations, Railways and Trams, Mechanical Engineering, Construction, Nuclear Engineering, Renewable Energy, Hydroelectric Power and Hydraulic Engineering, and Patents, professional translators can learn about the advantages of using spelling and grammar checks and the CAT tools and also how to avoid falling into some traps when using them.

This second part of the book is richly illustrated with photographs of bilingual and specialized dictionaries used by the authors. The most interesting insight is how the authors bring to light the importance of the Internet and visual dictionaries to help the professional translator to find the accurate context for its terminology.

Regarding translation as a profession, 3 examples of common problems faced by translators and approached by the authors are as follows: 1) The client says the translation is too literal, when sometimes it should be literal to be accurate. 2) The client accuses the translator of having used machine translation as an excuse to say they did not like the translation. 3) The client thinks the translation was not made by a native English speaker. I would like to highlight this last problem. Mitchell and Florescu-Mitchell criticize the notion of being a native speaker of a language. For the authors,

> *Just because you were born in a certain country does not mean that you necessarily have a good grasp of its language. Indeed, if you left the country early in life you may not speak that language at all. So what is your native language? Well, it is the language that you have learned to write in and master but legally this does not make you a Native XXX speaker. Of course, when you hand in a translation it should sound like what an English speaker would expect so in that sense it is a valid requirement. One of the points to consider though is to ask if the person making the comment is qualified to make it. Are they a native English speaker? In our experience, they are not.*

In fact, in my experience as a non-native speaker author and professional translator, it has been curious to realize native speakers of the English language are more understanding with the mistakes of non-natives than the non-natives themselves. For a non-native speaker of English, writing a paper in this language can be challenging. Not only because of the grammar rules, which can be learned by taking English classes or consulting books, but because it involves the embarrassment of sharing with others our writing imperfections inside a scientific culture where errors are not seen in a very good light. This way, I recommend *A Practical Guide to Scientific and Technical Translation: Publishing, Style and Terminology* for native and non-native speakers of English and for professional translators from any technical field. This guide will help scientists improve their writing in English and professional translators to refine their working practices.

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Ask Athena: Duplicate Publication, Accused Board Member, and Peer Review for Editorials

Ask Athena is *Science Editor's* advice column for your most challenging publishing and editing questions. Submit your questions to scienceeditor@councilscienceeditors.org

Ask Athena: What Constitutes Duplicate Publication?

Dear Athena,
Our journal received a letter to the editor regarding a recently published paper. The editor in chief felt the letter contained some valid points and invited the authors of the original publication to submit a reply. In the course of preparing their reply, the authors discovered that this same letter had already been published in another journal. What should the editor do now?

— *Seeing Double*

Dear Seeing Double,
How lucky for you that the authors found this other letter before the duplicate was published in your journal, because that is precisely what this is, duplicate publication.

If the duplicate had already been published, that would be a clear violation of publication ethics, and I would advise you to contact the editor in chief of the other journal, as well as the authors' institution. Because you had not yet published the letter, you may be able to handle this differently.

First, work with your editor in chief to draft a letter to the authors explaining what you discovered. Avoid accusations, and simply state the facts that the letter the authors submitted to your journal appears to have been previously published in another journal. Explain that it is against your journal policies and ask the authors to explain to you what happened. Give them a short deadline by which to respond, about a week.

Your next step will depend on the authors' response. Sometimes mistakes like these are simply the result of ignorance on the part of the authors; they may not realize that what they did is not right. If the authors respond that they now understand their mistake and apologize, I would not recommend any further action. On the other hand, if they defend themselves and try to argue they are not at fault, it is time to contact their institution. In that case, contact their department head, or someone in the research integrity office or similar. Again, refrain from accusations, but explain the situation to the institution, and forward any correspondence between you and the authors. At that point, any further action is up to the authors' institution.

Finally, now is the time to put safeguards in place to try to prevent this from happening again. Many journals ask authors during the submission process to confirm their paper has not been previously published and is not under consideration elsewhere. If your journal does not ask such a question, you would be wise to add it somewhere in the submission process. While this does not necessarily prevent authors from submitting a duplicate, it does put them on notice that the journal will not accept such a submission.

Answers to Ask Athena questions are a group effort by members of the CSE Education Committee.

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This information should also appear on the journal website, and if your journal follows the recommendations of COPE or the International Committee of Medical Journal Editors, include a link to those policies as well.

Always,
Athena

Ask Athena: What To Do When a Board Member Stands Accused

Dear Athena,
Our journal has a large editorial board, and one of our members has just been charged with a crime. A trial will be forthcoming, but there has not yet been a decision of guilt. The crime does not involve research misconduct, but is loosely related to our profession. What should the journal do now?

— *Accused*

Dear Accused,
How unfortunate. Because you don't have a lot of information, and nothing has been decided in a court of law, it is best at this point to remain cautious and remember that this person is innocent until proven guilty. You should not do anything that would punish the board member before you have more information.

If your journal is published by a society, you should consult with the legal team, either in-house or external. They can advise you as to how to proceed. The society may have a policy for such situations, and there may be ramifications to this person's volunteer activities if they go beyond peer review. For example, the person may not be allowed to serve on committees until the outcome of the trial is determined, or their name may need to be removed from the Editorial Board listing. If you are with a large publisher, they will likely have legal counsel that can provide input.

Your next steps as a journal depend somewhat on your level of comfort because, again, the person has not been declared guilty. If the person is a peer reviewer on a paper currently under review, you could notify them that their review is not needed. Or, if the editor is comfortable, allow the person to submit the review, and the editor can determine whether that review is useful and unbiased. If the accused is a co-author on a paper under review, that review should proceed as normal. If they are a corresponding author on a paper under review, allow the review to proceed as normal, but use this time to decide what you will do if the paper is later revised and resubmitted. It may be reasonable to decline to review the paper until the trial is completed. As mentioned above, your publisher or professional society may have policies in place that can guide those decisions.

If it is later determined that the person is innocent, then all can return to normal. On the other hand, if the verdict is guilty, any sanctions that went into effect when the person was accused should remain permanent. Reputation is important, and even the appearance of conflict of interest can be a problem. This may sound harsh, but especially if the case is widely known, the journal may not want it to be seen as a mark against them that one of their editorial board members is not an esteemed member of the professional community.

Always,
Athena

Ask Athena: Editorials and Peer Review

Dear Athena,
Should editorials (e.g., opinion columns) undergo peer view? I believe our editor-in-chief's editorials do not need this step as they are essentially a discussion about the issue's theme and contents. But we feature a regular editorial by medical residents and occasionally a guest editorial, as well. They are short opinion pieces (500 words or less) about various timely topics in the fi eld and usually include references (fewer than 10). Is there an industry standard/recommendation?

Thanks so much for your time, wisdom, and guidance!

—Perplexed about Peer Review

Dear Perplexed,
Thank you for asking about the necessity of peer review for editorials.

As with original research articles and reviews, editorials can only gain from peer review. Reviewers bring added perspective to the content and can identify errors, raise questions, and/or provide feedback that improves the overall quality of the editorial. Depending upon the timing of publication for editorials, reviewer timeliness might be a concern. If the publication timing is especially tight and external peer review isn't feasible, consider sending the editorial to a couple of your editors who are familiar with this topic and request an expedited review from them.

Most articles, including editorials, benefi t from peer review, and your authors and readers will thank you for taking this extra step.

Always,
Athena

Will TikTok Go Viral in Scholarly Publishing?

Jennifer Regala

Is Jennifer really going to write an article about TikTok and scholarly publishing? Why, yes, I am. I joined TikTok so you don't have to. Unless, of course, you want to. Either way, grab some popcorn and a cold bev, curl up in a comfy spot, and let's get started.

I set out to write this column considering TikTok from a serious point of view. We all know TikTok as the place where catchy songs and fun dances are showcased 24 hours a day. Aside from the fun aspect of TikTok, though, I was truly curious to learn how TikTok is affecting the academic world. I asked this question as I considered what I would write: "Will TikTok go viral in scholarly publishing?" My prediction is YES, TikTok will go viral in scholarly publishing, particularly with researchers. It is a way to make complicated principles accessible to anyone, easy to understand, and entertaining. (And yes, TikTok is a serious time waster.)

CAUTION TO ALL READERS: TikTok is not for the faint of heart. It is beyond fascinating and is guaranteed to suck you in with its boundless resources of… well… everything. Since its launch in 2016, TikTok has been growing exponentially. Make sure you have time to get absorbed (euphemism for hours of distraction) in this labyrinth of information overload. Remember when the World Wide Web used to be called the Information Superhighway? Well, TikTok is the Information Rocket Ship that will take you to worlds you didn't even know existed. Want to see a woman who taught herself to be a professional jump roper during the quarantine? Did you know there are entire haunted towns? Do you want to learn about the complexities of sorority rush in the United States and how their selection algorithm is the same one used for medical residency programs? I bet you thought you were an Excel expert—well, you're not. TikTok will make you better, though. Did you know you can take a PHOTO of a spreadsheet and convert it into an Excel spreadsheet almost instantaneously? Have you any idea of the true power of baking soda? Trying to find people in the same season of life as you? I have spent the last 2 weeks crying as I watch other mamas who are getting ready to drop their kids back off at college, too. Maybe you need a smile? Start watching roller skating TikTok.

(Beloved Editor-in-Chief, Jonathan, please consider the above warning to readers as the reason why I might have been a bit late in submitting this article. Ahem… let's get started.)

TikTok offers all and sundry glimpses into every facet of the world, and science, medicine, the humanities, and academic studies are all included. I will share with you my very broad observations about this social media platform with my ideas on how it can be used to disseminate content broadly in a way that maximizes impact and relatability.

I must also be transparent with my own TikTok ineptitude. I do not use it professionally yet, nor does my organization. However, I believe it is a powerful tool, and I am using the guidance below to formulate my own professional TikTok strategy for my personal account and to collaborate with my American Urological Association colleagues on future organizational use of the platform. Even if you're thinking about using this tool for your work, I propose that you reserve your organization's handle on TikTok to ensure you have the real estate you'll need if you choose to move forward with posting content.

I make exploration of the social media world part of the pursuit of not only my organization's relevance but my own. Keeping up with how social media is used to amplify messages is a personal priority of mine and my role in scholarly publishing.

What Could TikTok Possibly Have to Do with Scholarly Publishing?

As it turns out, it has everything to do with scholarly publishing. I state often that the days of the dusty, crusty pile of old journals are behind us. I look at these beautiful old leather-bound copies of *The Journal of Urology®* in my office to remind myself about how I can keep important research alive long after the print copy has gone to the binder. How can we continue the conversation about important research long after an article has been published?

TikTok has everything to do with this concept. Anyone can use TikTok, and over a billion people use the app. The potential is huge. A well-done video has the potential to extend your reach further than we could have ever imagined.

JENNIFER REGALA, is the Director of Publications/Executive Editor at the American Urological Association.

Opinions expressed are those of the authors and do not necessarily reflect the opinions or policies of their employers, the Council of Science Editors, or the Editorial Board of Science Editor.

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YOU Can Be the Trendsetter!

At this point you may be asking yourself "TikTok sounds exciting and fun, but I don't know of any journals on TikTok so what would a journal video even look like? What am I getting myself into?!?"

Those are good questions! Here's what I picture for a journal account, and perhaps I will use this as my own to-do list when I start a TikTok for one of the AUA's journals. I would take a content combination approach to make the account super fun and addictive and useful. I picture all parties on camera for the most part, which would allow consumers a unique view into the scholarly publishing world.

- Feature the editorial office staff to provide short behind-the-scenes glimpses into the editorial process. What happens after an author hits submit? What happens after an author is accepted? What are social media tips an author can use?
- Feature the editor-in-chief. What makes research novel? What is the editorial team looking for in an accepted manuscript?
- Feature the authors. Quick summaries of their articles, focusing on the visual aspects of their article, would be awesome!

I have to tell you that I haven't seen a serious peer-reviewed journal using TikTok. Who wants to get started with me?

Where Do I Start? Which Tools Will I Need?

TikTok is easy to use. You will need to register an account and start exploring. I find that TikTok is easiest to navigate on my iPhone, but your device of choice will get you where you need to be.

The biggest tool you will need is intangible. You need a vision of how you will use TikTok. The following list is applicable to the launch of any social media account. Before you get started, consider the following:

1. WHY do I need this tool? How will it provide a different or complementary/adjacent advantage to sharing my message with the world?
2. WHO am I trying to reach? For instance, if you work for a medical society, are you trying to reach patients? Early career professionals? Medical students? Practicing physicians? Perhaps a combination of all of the above?
3. HOW will you launch the account? Will you market this launch to your community, or will you build a content library before you start sharing it? How will you make sure you are keeping updated content flowing to the platform? Will the account represent your entire organization or only your publications?
4. WHERE will the responsibility for content development belong in your organization? Will you be approaching your constituents to contribute to the messaging and content? Will more than one department in your organization be responsible for this account?
5. WHEN will you post? Posting frequently is key to the success of any social media account. It is important to consider how frequent posting fits into your already busy to-do list of regularly scheduled work.
6. WHAT am I doing *this* for? First of all, do you understand what *this* is? Your *this* is not the same as my *this*. Make sure you have a solid direction for next steps and commit to that plan.

For a beginning content creator, all you need is the video recording device on your smartphone. Super users of course utilize professional cameras and video cameras, but you don't need to overcomplicate things as a beginner. Often, the most basic videos are the best and attract the biggest audiences. Remember, TikTok makes concepts accessible. A glitzy production is not necessary to achieve accessibility. Spend some time getting to know what's on TikTok and how it pertains to your own intended audience.

The beauty of TikTok videos is that you have the capability to download the videos and repurpose them to Twitter, Facebook, Instagram, email, and your Web site. This flexibility makes creation time worth it for repurposing potential alone.

Learning How to Speak TikTok

What Does It Mean to Go Viral?

According to Urban Dictionary, the term *going viral* is "used in reference to Internet content which can be passed through electronic mail and social networking sites (Facebook, etc.): an image, video, or link that spreads rapidly through a population by being frequently shared with a number of individuals has 'gone viral'."[1]

Although going viral is an exciting prospect, it should never be the goal of posting anything on any social media platform. Your goal is to get more eyes on your message than would be possible from the traditional publication of research. It is a win if you get a few hundred more individuals to interact with an article, for instance. Keep your expectations realistic.

What Is a For You Page?

A *For You Page* is the first spot a TikTok user encounters when opening the app. This page uses a complex algorithm to determine the content each individual user might like to see. How do you end up on as many For You Pages as possible? A combination of hashtags, posting relevant content frequently, using popular "sounds," and growing your followers and likes will increase your likelihood of reaching more For You Pages.

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What Is a Sound?

A sound is the background soundtrack of your video. The sound could be simple—the narration of the video with no music. Or, you could use a "trending" sound that is popular on the app at the moment, which would be the narration and/or music of another creator.

What Is a Hashtag?

Similar to other social media platforms, a hashtag is a short description of the content in a post preceded by the # symbol. Common TikTok hashtags are #fyp (short for "For You Page") and #viral. It is up to you to come up with additional catchy hashtags for you to reach your target communities!

What about Researchers?

Even if you never dip your big toe into the TikTok waters, you need to be educated about this platform and all of the others so you can discuss the merits of self-promotion with your authors, editors, and beyond. Perhaps there are social media tools you don't have the professional bandwidth to learn and/or perfect. It still helps to understand how others are using these tools so you can best advise those who look to you to know what's happening in other fields. With every passing day, our once-ordinary jobs are to help our authors and their research become extraordinary.

In my case, I have had the good fortune to learn a lot of what I know from our "doc stars" themselves. Their videos make challenging ideas easily consumable by the everyday person. I share some of my favorites in my top 5 list at the end of this article.

How to Make TikTok Fun but Professional

Part of the accessibility of TikTok is that it is often fun. How do you make it fun but keep it professional, though? It is a delicate balance, and I encourage you to read a past column of mine (not trying to self-cite, pinky promise; it's only that I've already covered the basics on this important consideration).[2]

What Does Success Look Like?

First, define what success looks like for your proposed use case. Is it lots of followers? A certain number of likes and/or views and/or comments? Once you've determined what success looks like, the platform makes it very easy to gauge your metrics. And don't forget that if users aren't engaging with your content on TikTok itself, your repurposed content on other platforms might be garnering lots of engagement.

Top 5 Accounts to Follow for Academic and/or Scholarly Publishing Inspo

1. @RenaMalikMD, a respected and well-published urologist with a gift for making science accessible, not only on Twitter but on YouTube, where she has more than 1 million subscribers
2. @Neuroerin, a self-described "neuroscientist making random videos"
3. @hdiangelis, CSE's very own, who shares her delightful point of view of balancing parenthood, her professional life, and being the best cat mom in the biz
4. @AmericanHeartAssociation, and I love how their bio speaks for itself: "Raise heart rates. Raise awareness. Save lives."
5. @glutenburgbible, equal parts aspirational, educational, and emotional, I encourage you to join me in cheering on this amazing human and PhD student! And her bio kills me: "Putting the lit in literature phd ha ha"

Keep the conversation going! Let me know your favorite TikTok accounts, how you're using the platform yourself, and whether you think TikTok is here to stay. Please especially point me in the direction of scholarly, peer-reviewed journals using TikTok to promote their content. I'm also interested in your thoughts on newly emerging platforms. A new favorite of mine is BeReal. As always, you can find me on Twitter (@Jennifer ARegala) or on email (JRegala@AUANet.org). Happy TikToking!

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IC!

Stacy L Christiansen

"The difference between the almost right word and the right word is really a large matter. 'tis the difference between the lightning bug and the lightning." –Mark Twain

Many terms in scientific communication end in the adjectival suffix "-ic." Or is it "-ical"? Yes and no. And does it matter?

Both *-ic* and *-ical* can be appropriate suffixes for adjectives. According to the current edition of the *AMA Manual of Style*, often the "-ic" and "-ical" forms have the same meaning, for example, *anatomic* and *anatomical*, *neurologic* and *neurological*, and *physiologic* and *physiological*. However, there are times when the suffix may change the meaning of the word and it is important to use the correct form. Once the suffix use is sorted, it is also preferable to be consistent throughout a document.[1]

AMA style guidance on this topic has evolved over the years. The 10th edition (as well as the 9th) directed authors and editors to check medical dictionaries as well as *Webster's* for guidance on which suffix to choose but noted a preference for the shorter term.[2]

Other style guides offer identical or similar guidance. The current edition of *Scientific Style and Format* advises consistent use of the chosen suffix and also notes that some variants are not idiomatic, for example, "'chemic' is not accepted as a shorter form of 'chemical.'"[3]

Webster's includes a host of individual entries from *anatomical* to *zoological*, including not only definitions but also preferred usage (e.g., *anatomic* and *zoologic* are listed as variants). In the entry for *-ical*, the definition includes this note: "sometimes differing from *-ic* in that adjectives formed with *-ical* have a wider or more transferred semantic range than corresponding adjectives in *-ic*."[4] In other words, *-ical* terms tend to be used more often in different ways, and context helps guide meaning and word usage.

The most comprehensive guidance on "-ic" vs. "-ical" appears in *Fowler's*.[5] An entry on *-ic(al)* has 6 points of consideration. In addition to those raised above, *Fowler's* notes that some terms only ever occur with *-ic* endings, such as *dramatic*, *patriotic*, and *microscopic*. And some only ever occur with *-ical* endings, such as *chemical*, *radical*,

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Box. Important distinctions for *-ic* vs *-ical*

biologic, biological
- *Biologic* is typically used in the medical literature as a noun, a product
- *Biological* refers to anything related to biology or living things

classic, classical
- *Classic* means important or authoritative; in medicine it can mean typical (e.g., the classic symptoms of stroke)
- *Classical* is used to refer to traditional values in literature, music, etc., or to the definitive form (e.g., classical architecture)

economic, economical
- *Economic* means involving finances, supply and demand, or relating to an economy
- *Economical* means thrifty, efficient, and not wasteful

empiric, empirical
- *Empiric* is a noun, someone who relies on practical experience
- *Empirical* means based on observation or experience

historic, historical
- *Historic* refers to a moment in history, especially important events
- *Historical* means anything that is related to or occurred in history

periodic, periodical
- *Periodic* means occurring at regular intervals
- *Periodical* can also mean published at fixed intervals but typically is used as a noun

physic, physical
- *Physic* is the practice of treating disease, sometimes used to refer to the medical profession
- *Physical* refers to the body or natural science

politic, political
- *Politic* refers to a clever or diplomatic manner of managing or dealing with someone or some situation
- *Political* relates to government, policy, or a political system

Compiled from *Webster's*, *AMA Manual of Style*, and *Medical Usage and Abusage*.

CONTINUED

and *practical*. The guidance goes on to note that of those that can take either suffix, there appears to be a preference in American English for *-ic* and in British English for *-ical*. The distribution, however, is noted to be "erratic" and sometimes seems to depend on "idiomatic or rhythmical considerations" in context.

One final resource of note is Edie Schwager's *Medical English Usage and Abusage*. Schwager refers to the "al" in this context as a "vestigial tail," noting that in many cases nothing is lost if the tail is removed, and nothing is gained if it's added. For that reason, she omits the "al" when it's an option.[6] Schwager provides several examples and closes the entry recommending use of the shorter term. "And thus ends the tale."

Fascinating, you might think (or maybe not). But what should a writer or editor do when faced with a term that could end in *-ic* or *-ical*? First, consult a trusted reference, such as *Webster's* or *Dorland's* (for medical terms). Then, if no distinction in meaning appears based on *-ic* vs. *-ical* forms, decide which you want to use and stick with it (unless a stylesheet dictates otherwise). Note that *Webster's* often lists a preference even without a difference in meaning.

The Box includes some of the more common terms for which the suffix *does* matter; in some cases the difference determines the part of speech (adjective or noun). As always, the editor's job is to ensure that the final content is authentic, logical, and of course, grammatical.

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