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SCIENCE EDITOR

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IN THIS ISSUE:

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Adaptation: Changing to Meet a Global Challenge by Jonathan Schultz

The COVID19 pandemic is accelerating the pace of change in science: As the SARS-CoV-2 virus spreads around the world, scientists need to be able to collect, analyze, and share vast amounts of data quickly and easily. Journals and publications are reevaluating policies and trying to adjust rapidly, while minimizing the spread of incorrect and potentially harmful misinformation. New ways of tracking and mapping data are being developed or refined, and an example of this is shown on the cover of this Summer issue of *Science Editor*, which represents a genomic epidemiology of the novel coronavirus. The Nextstrain team has been mapping the evolutionary relationships of new genomes of SARS-CoV-2 viruses as they are made available and published from labs across the globe. The blue sections represent the initial emergence in Wuhan, China, while the tan tracks its spread to Europe, and red into North America. Tracking these data and how the virus is changing is essential to understanding how it can be stopped. The Nextstrain project has been in development for years but has gained a new, urgent relevance. Likewise, although many of the articles in this issue were conceived prior to the COVID19 pandemic, they all reflect the current status quo and how we're learning to adapt.

The full version of this Viewpoint is available online at https://www.csescienceeditor.org/article/adaptation-changing-to-meet-a-global-challenge/.

On the cover: Genomic epidemiology of SARS-CoV-2 viruses. Blue sections represent the initial emergence in China while tan tracks it spread to Europe and red into North America. Image has been made available under a CC-BY-4.0 license by http://nextstrain.org.

Carissa Gilman: Taking the Reins During Uncertain Times

Jonathan Schultz

This isn't how Carissa Gilman thought her year as President of the CSE would start. But here we are, almost half a year into a global pandemic that has pushed everything into a constant state of flux and uncertainty. As a scientific publishing veteran, having worked for both authors and editors, and now as Managing Editor of the American Cancer Society's journal *Cancer*, she's seen many changes to the publishing landscape, so I thought it would be a good time to talk with her about her experiences, CSE in particular. In early July, I spoke with Carissa about her life in publishing, her love of horses and dogs, and the challenges and opportunities ahead for CSE and scientific publishing.

Science Editor: How did you get involved in science editing and production?

Carissa Gilman: I got my degree in English, and when I got out of college, I was just looking for any job where I could use my degree that was not teaching. I was looking in the newspaper (that's how long ago it was) for any job that I thought applied. There was an editorial assistant position and I just saw the word "editorial" and zeroed in on it. It was at a nonprofit health services research organization, so I started my career in scholarly publishing as an author's editor. I helped researchers prepare and submit their papers to journals and, like a lot of nonprofits, it had some funding issues: I saw the writing on the wall and thought that I should look for something else and saw an assistant managing editor position at Emory at *The American Journal of Human Genetics*. That's how I ended up moving over to the journal side of things. After that, I have worked at the American Cancer Society for 14 years—during that time having served as the Managing Editor for all three journals at one time or another. I moved over to the highest volume journal, *Cancer*, in 2009 and that is where I have been ever since.

I do think that having that experience as an author's editor and actually submitting to journals was really valuable in helping me understand where authors are coming from and what's important to them, and what their pain points are. Even though that was a very short period of time of my career, I'm really glad I had that experience: You have a paper and you meticulously go through the author instructions to make sure that you're following their guidelines and reformatting things and all that. And then it immediately gets rejected. It's just... deflating. So, I have a lot of sympathy for authors in that situation. At the same time, I am also very judgmental when they do things like forget to change the journal name on their cover letter, because I'm like, you need to be more careful. I would never have made that mistake. [Laughs]

Science Editor: What do you find that you enjoy the most about this career?

Carissa: I have worked at nonprofits my entire career, and it's important to me to do something where I feel like I'm contributing to the greater good of society. And for me, scholarly publishing fulfills that need. I do think the work we do ultimately improves the lives of people who are impacted by cancer, speaking from my experience specifically. I also really love having a finished product: Every two weeks when an issue publishes, I have this tangible product that I helped create. And I love the working relationships. I have a great, great relationship with my editor-in-chief, a great relationship with my journals team. Many of us have worked together for 14 years or more, in some cases, so we have a really strong bond. With any job, it's the personal relationships that make it fulfilling and worthwhile, along with feeling like you have done something concrete that may help people down the line.

JONATHAN SCHULTZ is Editor-in-Chief, *Science Editor*, and Director, Journal Operations, American Heart Association.

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Science Editor: Speaking of relationships, how are you maintaining those relationships in this all virtual world we're in now?

Carissa: I am missing having that face-to-face interaction with people. We all used to go to lunch together on Thursdays, and it was a really nice time to get away from work and just talk. We now have a weekly Microsoft Teams virtual video conference where we do the same thing: We don't talk about work, we just talk about how your week is going and what's going on with you. And then we'll have a theme of the week, like what was your first concert (Kenny Rogers and Dolly Parton "Islands in the Stream" tour at the Omni). Just to try to maintain that personal connection with people, but it's not the same.

Science Editor: Have you had any success connecting with editors or authors in a similar way?

Carissa: That's a good question. So, we're currently planning our first virtual editorial board meeting, probably in October. I'm very curious to see how that experience is different. Just based on what the experience was like having the CSE annual meeting virtually, I think you do lose some things, but then there are some things you gain unexpectedly. It will be interesting to see if we have some different interactions or engagement from people that normally don't attend the in-person meeting. So I'm curious: Have you had a virtual editorial board meeting?

Science Editor: One of our (American Heart Association) journals has actually done it, and one is being planned right now. The one that did it liked, as you just alluded to, that they got more attendance than they ever had for the in-person ones prior, including people who normally couldn't travel. Now it's just a matter of staying up really late at night to attend, depending on the time zone.

Carissa: Right. But I have been a little sad because we always have our pre-editorial board meeting dinner with the editor and publisher, and I know that's not going to happen. It's just a different interaction and I don't know what would take the place of that, so we'll see.

Science Editor: If you hadn't ended up in scientific editing, what do you think you would be doing instead?

Carissa: So, I really wanted to work with horses for a living and I always thought that's what I would do. And there's a part of me that's still dismayed that that didn't happen. I only agreed with my parents to go to college if I could major in equine science, and I applied to Brenau Women's College in Gainesville, Georgia, because they had an equine science program and you could take your horse with you. I got a scholarship, but by the time I arrived, they had discontinued the program. But I had enough AP credits to exempt out of my freshmen core English classes, so that's how I became an English major. It was not by design. By the time I graduated, I just felt like I wasn't on that path anymore to pursue a career in the horse industry: it's not common to have an English degree and then start going back to managing a barn or whatever. I do own a horse and riding is my primary interest outside of work, but I had always planned for it to just be my entire life. And that's not how things turned out.

Science Editor: Do you treat dealing with a new editor as breaking in a steed?

Carissa: Well, I had not thought of it like that, but my philosophy toward training my horse is to just stuff treats in his face. So I guess maybe that works with editors too. It's positive reinforcement.

Science Editor: As the current president, I want to talk a little bit about CSE. What has CSE meant to you over the years?

Carissa: CSE has been my primary professional organization, the one that I've been most involved in. The reason that happened I think is because I was mentored within the organization. Angela Cochran was my colleague at the American Cancer Society, and she was heavily involved with CSE, and she's the one that got me more involved. To me, the mentorship aspect of CSE is one of the things that's made it most special to me. One of its greatest strengths is that there are members who are open and willing to mentoring early career professionals. I find it to be a great collegial organization that has opportunity for people who do want to be more involved. There are not a lot of barriers to entry: If you want to be, you can be on a committee or become a committee chair and be more involved with the organization. I think that's always something we need to work on is to make sure that people know they can join committees and be involved.

That's what my experience was like when I was a young professional coming up in scholarly publishing. I remember so clearly that first time going to my first Short Course for Managing Editors and just having that realization that other people have the same problems I do, the same pain points, and have had the same experiences. It was so eye opening for me. A lot of times when you're starting your career in scholarly publishing, at least back in the day where the journal offices moved with a change in editorship, you were surrounded by people who didn't do what you did, who didn't even know what you did. And we were in a basement office kind of by ourselves. That's why CSE was such an incredible resource for me is because I felt so isolated in my career at this larger university where I didn't know how to find other people that worked in journal offices. It just really

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opened my eyes to what was out there and that there was an entire career network out there for people who did what I did. I just fell in love with the organization and it's meant so much to me. Being able to serve on the board is such a privilege to me just because of what it's meant to my career.

Science Editor: This is obviously a very unusual year in which to be president. Do you have a vision for what you want to accomplish this year?

Carissa: I mean saying it's unusual is kind of an understatement. It's an extremely challenging year and it's nothing like what I thought it would be. I'm trying to look at it as an opportunity to innovate and kind of rethink some of what we do. To ask ourselves how we can serve our membership when they are as challenged by the situation as we are as an organization. How can we recruit and retain members who are facing reduced budgets at their organizations or personally? How can we reach out to them when we do not have the in-person meeting as an option? How can we better serve our members in this time of incredible need, because I think people need us more than ever? And so we need to really find ways that we can fulfill that need and reach out to them, while at the same time facing our own revenue challenges.

Science Editor: I'm curious, is there anything that's changed this year that you hope continues, even if things go back to "normal"?

Carissa: I hope the virtual happy hours are something that we continue because they're not just for members, they're for anybody where you can get together with your colleagues and talk. I also think we had talked a lot about offering our educational programming virtually but were hesitating on taking the plunge, and this has forced us to take that plunge. I think virtual programming is absolutely something we should be doing to reach a wider audience. And so I absolutely know that that will continue: Even once (if?) we are able to meet in person again, I think there will be some virtual programming that will continue.

Science Editor: Is there anything that readers might be surprised to learn about you?

Carissa: The other thing I do in my free time is that I serve as the volunteer adoption coordinator for Georgia Doberman Rescue. That keeps me very, very busy, and animal rescue is not for the faint of heart. It's some of the most infuriating and rewarding work: You see the absolute worst and the absolute best of humanity. So it's a rollercoaster for sure, but it's really rewarding to get a dog that needs a home into a forever home and see how happy they are after.

Science Editor: Doberman is an interesting breed: I'm old enough to remember when they were the scary breed everyone referenced, before Pit Bulls took that title.

Carissa: What's ironic is that when I was a small child, our neighbors had a Doberman. This was back before anybody had fences, so dogs just had the run of the neighborhood. Her name was Scarlet and she used to chase me up the jungle gym. I was terrified of her. So I think it's funny that I ended up having Dobermans and being involved in Doberman rescue because yeah, you're exactly right: They were the scary breed.

Science Editor: To wrap up, is there something that I didn't ask that you want to tell people about?

Carissa: My husband and I have been watching *Halt and Catch Fire*, the show about the eighties PC race, basically. We've been having fun reminiscing about all the technological advances that we've seen in our lifetimes. When I started as an author editorial assistant, to find those author guidelines, you had to go to the library and find the January issue and photocopy it out of the issue. Then when I was an assistant managing editor, we had to fax all the reviewer invitations. We got our submissions via snail mail. We had file cabinets with a paper folder for every manuscript, and then we FedExed a batch of papers to the publisher at end of the day. In my career, we've just seen the technology change so rapidly, but the traditional peer review model hasn't really changed in a long time.

That's been an interesting dichotomy with the COVID stuff. I see a lot of talk about digital first, not just in reference to journals, but at the American Cancer Society, we're talking about that too for patient information. But I do think a lot of journals that have been hesitating about going online-only are now making the decision to just go ahead and do it. With that move, I do worry about increasing the divide between those who have really available online access and those who don't. And I think it's the same situation with conferences and virtual. I think it's the same with our education of children going online. It really amplifies these questions about access and equity and high privilege versus low privilege. And I think even some well-meaning people are either ignoring the issue or just pretending it doesn't exist because they don't know what the solution is. That's been weighing on my mind lately: how do we ensure access for people, even when we realize that the circumstances are forcing us into this digital-first paradigm?

How to Communicate with Busy Authors

Becky Rivard

How do we communicate with authors who are very busy and not necessarily reading correspondence or instructions carefully? As editors, we want to provide instructions that are as detailed as possible, but in today's world, it is necessary to keep things brief. There might be additional language barriers with authors who are not native English speakers. In addition, our communication with authors is frequently in writing, which can make it challenging to convey tone. Here are some tips on communicating with busy authors.

Keep it light and to-the-point

In college I had a professor who required all essays to be between exactly one and two pages. This was hard for us English majors, who were used to writing long, in-depth essays. It seemed impossible to write ONLY one or two pages, including an introduction, argument, conclusion, and references. Although I suspect that it was due in part to the professor's busy schedule, requiring us to write short essays was the most practical skill that could be taught to us. In almost any form of writing, we need to know how to get our point across succinctly.

Subject lines are key!

I never create a vague email subject line like "Question" or "Important!" Try to include the journal name and paper number or a quick descriptor. Examples include "Missing Abstract in Journal Article" or "Odd Equation Symbol in Your Paper." This keeps things organized and shows authors the detail with which you are handling their paper. Many publishing software tools send automated messages, which makes our jobs easier, but it can also make the whole process seem impersonal to the author. They appreciate someone reaching out personally to attend to their article or book manuscript, which they may have spent years working on.

If needed, bold or underline important parts—but don't overdo it

Authors may be reading on their phones or tablets and while in an airport, watching children, or sitting in a hectic

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office during a quick lunch break. While we all want our authors to be sitting in silence reading every word intently, that may not be the case. Everyone is bombarded with text everywhere, and email inboxes are no exception. If some parts of your email or instructions are essential, it can help to emphasize items, if needed, to make sure those parts aren't missed. Too much bold, underlining, or caps can create confusion and defeats the purpose of emphasizing a few parts.

Use the phone when necessary

Editing is a very screen-focused role and it can be tempting to send a quick email instead of taking the time to pick up the phone, but sometimes it is worth it to call. If you send a query and receive a response from a confused author needing clarity, it may help to talk about it out loud instead of starting a never-ending email string where one question leads to another and everyone ends up more confused than they were at the start.

Screen shots and links are helpful if the phone is not an option

For anyone working with authors in another country, or in other cases where the phone may not be the best option, remember that screen shots can help clarify some things and give authors a simple, visual way to understand what is being referenced. This can include screen shots of the article itself, a peer review or submission system, or a webpage describing a particular grammar issue. You can also send helpful links when needed, if there is a good resource that may help an author.

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Unless you know the author, never assume what their level of experience with publishing is

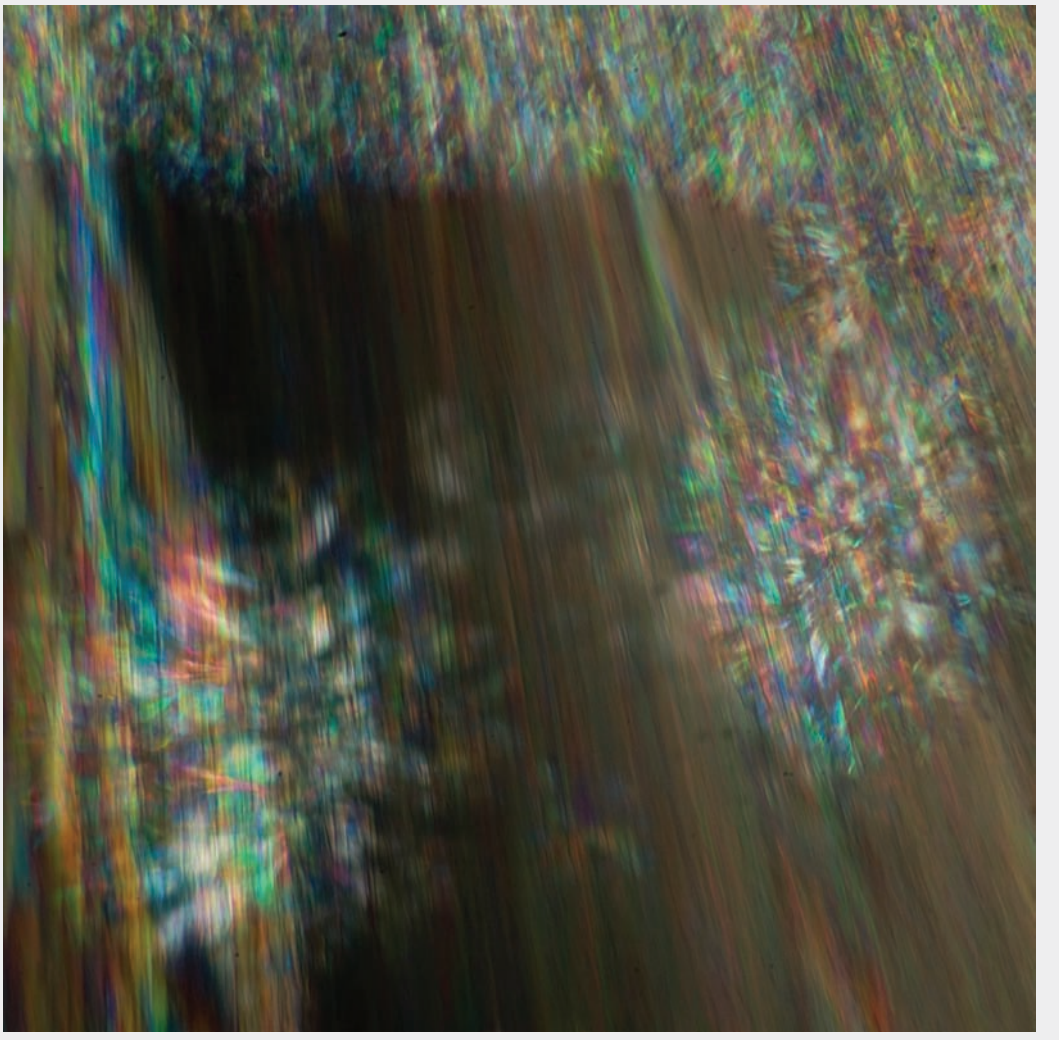
Some authors are well published and may be on their 139th article, while others are first-timers and will not know how to submit changes to their manuscript. In each discipline, there are some well-known names in the field. It helps to know if you are working with one of them; otherwise, provide instructions that would be thorough enough for a novice but to-the-point enough for an expert.

Remember that all authors are equal

As with any job, it is easy to get lost in day-to-day transactions and forget that we are working with people, not just deadlines or tasks. Each author has a unique story and should be treated respectfully. Remember to treat each author equally, and as you would want to be treated. In this regard, it is important to practice patience and empathy—good skills to have in any profession and in life. We are all working toward the shared goal of publishing research to share knowledge.

Sticking to the point is a learned skill. In a world where our jobs are become increasingly automated (for better or worse), good communication is important and perhaps should be taught more.

Do you have additional tips to help communicate with busy authors? Is it different with ELS authors? Please share with your colleagues and fellow CSE members!



Crystals of the amino acid cysteine. A microscopic exploration of crystals in daily life substances. Transmitted light and polarizing filters are used to provide coloration to transparent crystals in the amino acid Cysteine. Credit: Fernan Federici and Marcia Sartor. Attribution 4.0 International (CC BY 4.0). https://wellcomecollection.org/works/arx27c76

Confessions of an Accidental Editor

Peter J Olson

"So, how is it that an English major wound up editing science journals?"

I'm often asked this question, and the answer is quite simple:

Completely by accident.

The year was 1987. As a bright-eyed, bushy-tailed college freshman who had graduated from a math and science center the previous spring, I was bound and determined to pursue a degree in the biological sciences. Yet after a decidedly uninspired, subpar performance in Biology 101 and concomitant success in my humanities courses (a dichotomy that, incidentally, was consistent with my high school experience), a shift in trajectory was in order. Four years later, I had a BA in English Literature—and, like so many others who have received the same degree, walked away wondering just what it was that I should do with it.

Copyediting is referred to by some as "the accidental profession," and this pretty much sums up my own odyssey—and I'm not alone. If you were to survey the legion of copyeditors working today, many of them would reveal their secret identities as English Literature majors who, in sidestepping a career in academia, fell backwards into the vortex of copyediting—only to find that it was their true calling all along. This is not to suggest that there's always a single, epiphanic moment that makes someone turn on a dime and pick up a red pen; in fact, my journey spanned several years. Shortly after graduation, a foot-in-the-door gig as a fact checker for a Chicago-area publisher morphed into a full-time production editor position, which ultimately allowed me to make a lateral move to Sheridan Journal Services. I took on the role of Copyediting Coordinator during my fifth year at Sheridan—and two years after that, the experience I had garnered opened the door to an ancillary career as a freelance STEM journal copyeditor. I had come full circle from my freshman year of college, albeit in an ironic way.

Once my origin story is out of the way, a common follow-up question is:

"So if you don't have a science degree, how do you understand what you're reading?"

PETER J OLSON, ELS, is Senior Copyediting Coordinator, Sheridan Journal Services.

That's a tad more complicated. Being an English major in a world of scientists is by far the most challenging aspect of my chosen profession, and it makes the job an interesting if not paradoxical one. STEM journal copyeditors are not only expected to uphold every sacred rule of English grammar and syntax, they're expected to do so in scientific texts that are often so foreign as to be indecipherable. A careful reading of a scientific passage may reveal that it has a missing verb or nonparallel structure; however, as a STEM copyeditor, the trick is knowing *what* verb should be inserted or *how* to make the structure parallel when, in all likelihood, you lack an in-depth knowledge of the subject matter. Over my many years editing STEM journal content, I've gleaned a fair amount of information and have familiarized myself with certain terms, concepts, word origins, and industry standards (sometimes the hard way) to broaden my skills and strengthen my capabilities; nevertheless, one of the greatest challenges is to avoid inadvertently changing the scientific meaning of a sentence when attempting to make it grammatically correct or syntactically sound. I have to recognize and acknowledge when I'm in over my head so that I can request the author's input and have them verify that my edits have not altered their intent.

For the select few who haven't tuned out completely by this point and are actually somewhat intrigued, I may receive one more question:

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"So if I wanted to be a STEM journal copyeditor, where would I start?"

There are several answers here.

1. **Make sure you know what you're getting into.** Take an online course or two. Read or at least scan any number of the copyediting-themed books that are out there to get a general sense of the trade. And if you have any friends, acquaintances, or family members who copyedit for a living, talk with them about what it really means to be a copyeditor to help you discern whether it's actually something you would want to do. This is particularly important for anyone who is interested in pursuing a career in STEM journal copyediting, which can sound intriguing and exotic to an aspiring editor but requires a niche skill set as well as a combination of mental tenacity, fastidiousness, and endurance that is not for the faint of heart.
2. **Sharpen your tech skills.** We're well into the electronic age, and most STEM publishing institutions require that copyeditors have advanced knowledge of various software tools and programs and possess at least a basic understanding of XML coding, how to apply it, and the potential ramifications of incorrect application. In addition, STEM journal publishers are reducing publication times further and further, so copyeditors need to adopt technological means of working quickly and efficiently now more than ever. Also, if you want to freelance, be prepared to be your own IT department. Institutions that contract with freelancer copyeditors are certainly responsible for providing you with their technological requirements—but as a nonemployee, you generally won't have access to a help desk when your computer isn't cooperating.
3. **Stock your bookshelves.** Speaking of being on your own, as a freelance copyeditor, you will almost always be responsible for acquiring any publicly available reference manuals that are required to perform the work. Whether it be *The Associated Press Stylebook*, *The Chicago Manual of Style*, *The AMA Manual of Style*, or any other combination of canonical guides that publishers prescribe, it's prudent to have some of the more commonly used manuals at your fingertips, and it's doubly wise to familiarize yourself with them in your spare time. If you're short on space, or if you just want to save a tree, many manuals offer an online subscription in lieu of a hardcopy.
4. **Pound the pavement.** Many copyediting opportunities are freelance ones, and a good percentage of them aren't advertised. Publishers and publishing vendors often rely on established rosters of copyeditors that have been cultivated via referrals, erstwhile employees, and other internal connections, so you may have to knock on a few doors to let people know you're out there. Membership organizations such as the Editorial Freelancers Association can help you get a leg up by posting your resume online for potential clients to discover, but if you're just getting started, you might need to cast a wide net by cold-calling several publishing houses.
5. **Know what you don't know.** As a STEM journal copyeditor, you'll likely be editing content that's extremely advanced and unfamiliar to you, so it's critical to acknowledge your situation and avoid over-confidence. If you aren't 100% certain something is correct or accurate, look it up and/or add a query, particularly if you find yourself making an edit that's based on an assumption or a hunch. (In one early-career head-smacker, I changed a reference to the collection of folk tales known as *The Arabian Nights* to *The Arabian Knights* based solely on my childhood memory of a derivative TV cartoon that bore the latter spelling.) One of my favorite proverbs (its gender exclusivity notwithstanding) is from José Saramago's novel *The History of the Siege of Lisbon*: "He who does not know should have the humility to ask." Later in that same passage, Saramago effectively states that hubris "rather than ignorance is the cause of the greatest blunders." These are tenets that any copyeditor should espouse, but they're especially important for nonscientists who are editing scientific material.

Over the course of my nearly 25-year involvement with the STEM community, I have become fiercely committed to the task of helping authors and other editors communicate scientific research quickly, accurately, and effectively. What's more, I've realized that this responsibility is only becoming more and more critical as time marches on. And although I'm not a scientist (and was perhaps never destined to be one), the role I have been allowed to play in this endeavor continues to be a deeply satisfying one for me—even if it did happen by accident.

Envisioning Tomorrow's Earth (During a Rather Different Yesterday): Some Highlights of the 2020 AAAS Annual Meeting

Ava English, Jessica Scarfuto, Emma Stogsdill, Sarah Allen, Margaret Preigh, and Barbara Gastel

Standing-room-only sessions. Crowds at receptions and forums. Clusters of people viewing exhibits and posters. Children, parents, and grandparents thronging to Family Science Days. Such was the 2020 American Association for the Advancement of Science (AAAS) Annual Meeting, held in Seattle, Washington, on February 13–16. Themed, perhaps ironically, "Envisioning Tomorrow's Earth," the meeting occurred at a time very different from that weeks later, when COVID-19 was declared a pandemic and organizations worldwide postponed their conferences or moved them online. The annual meeting content, which spanned many areas of science and its context, retains relevance, however. The current report presents highlights of some sessions on topics that are likely to interest science editors and others involved in the communication of science.

Communicating Science Seminar

A daylong seminar on communicating science preceded the formal opening of the annual meeting. The following sections discuss some highlights. In addition to the sessions summarized, the seminar included another plenary session, titled "Building Community for Inclusive Public Engagement with Science," and other breakout sessions. Further information, including videos, is available at https://www.aaas.org/programs/annual-meeting/2020-communicating-science-seminar.[1]

AVA ENGLISH, EMMA STOGSDILL, SARAH ALLEN, and MARGARET PREIGH are graduate students studying science writing and science editing at Texas A&M University, where BARBARA GASTEL teaches these subjects; and JESSICA SCARFUTO is an assistant lecturer at Texas A&M University.

Engaging with the Media on Science-Society Topics

By Barbara Gastel

This plenary session brought together researchers and practitioners to discuss communicating about science via popular media. It began with 3 presentations. Open discussion occupied the last half of the session.

Robin Nabi, of the University of California, Santa Barbara, spoke on the role of emotion in influencing reactions to science news. She noted that although journalism research has focused largely on the cognitive aspect of news, factors conferring newsworthiness—such as novelty, drama, and relatability—relate to emotion. She then summarized a study on how the emotional aspect of a story can influence the audience. For the study, news stories were developed that framed equivalent content on mitigating climate change in terms of either loss or gain. Whereas loss frames tended to yield fear and depression, gain frames tended to engender hope and increase policy support and advocacy. Nabi also discussed how headlines can convey varied emotions and thus have varied effects. A key takeaway, she stated, was that scientists and journalists should consider the emotional aspect when deciding how to present information.

Lisa Johnson, of CBC News, Vancouver, British Columbia, discussed the problem of false balance in science reporting. She observed that as journalism has become increasingly fast-paced and newsrooms have been shrinking, journalists have faced more pressure to fall back on approaches such as giving equal weight to both sides. Although such approaches may suit political stories, she said, they tend to be inappropriate for science stories. Noting that opinion does not equal evidence, she called for giving appropriate weight, rather than necessarily equal weight, to different positions. Later, quoting her former professor as saying "lead with what you know," she emphasized the need to

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Exhibit hall entrance.

show what is known and where uncertainty exists and thus to help define the debate.

The last speaker, Jeffrey Duchin, of Seattle and King County and the University of Washington, addressed aspects of communicating about issues of public health significance. In doing so, he discussed how messaging about the then-emerging coronavirus situation was evolving. He closed with a series of questions, including what the science behind science communication is and how science communicators and public health professionals can best collaborate to serve the public.

Wide-ranging open discussion followed. Themes of questions included whether ethical issues arise about framing information so as to yield desired results, what responsibilities exist when presenting novel and uncertain science, and what to do when groups use findings from science communication research to spread misinformation. In response to a request for advice on communicating science to children, it was noted that children—and others—love stories. The value was mentioned of establishing a strong base of science coverage during normal times, rather than mainly reporting crises. Finally, noting losses of funding as coverage has moved online, Johnson stated, "Pay for news that you think is good."

Session attendees.

Science Outside the Box: Rethinking Relevance for Millennial Engagement

By Ava English

In this breakout session, representatives Geoff Hunt from LabX and Jen Benoit-Bryan from Slover Linett Audience Research discussed their findings from a 2018 U.S. national survey of millennial engagement with science. LabX, a program of the U.S. National Academy of Sciences, is designed to engage young adults with science through various activities. LabX partnered with Slover Linett to identify the interests and preferred learning methods of millennials in order to develop effective science education programs.

Millennials were defined in this study as individuals 18 to 37 years of age. The researchers administered a 20-question survey to gauge interests, preferred methods of learning, and interest in science and science-related topics. The term "science" was not defined for the participants. Through the panel-based research platform AmeriSpeak, the researchers gathered data from 3,993 individuals. They then analyzed 1,003 high-quality responses from this sample. The survey was administered only in English.

The researchers developed a "science affinity score" to indicate individual respondents' implicit interest in science. This score reflected the number of responses that reflected indirect interest in scientific concepts—for example, by showing an interest in how things work or expressing enjoyment of science or science-related forms of entertainment. According to their scores, respondents were categorized as having low, moderate, or high science affinity.

Unsurprisingly, the high-affinity group expressed the most interest in learning about science. Members of this group were also more likely to seek online learning experiences than were members of the low-affinity group, who tended to prefer in-person modes of learning. The moderate-affinity group was the most likely to attend events. Each group indicated being more inclined to attend educational experiences that also emphasize having fun.

Another finding was that millennials understood the application of science to tackle large-scale problems,

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Town hall session titled "Developing Ethical Guidelines for Science Journalism."

such as environmental issues, but that they did not see how science could be used to address their immediate local concerns other than education. Important local concerns cited by this age group included the economy, housing, and crime. More information about the methods and results of the survey is available at https://labx.org/audience-research/.[2]

LabX has been applying the findings of this study to design programs targeting the moderate-affinity group. A goal of the programs is "to meet people with what they care about," Hunt noted. LabX has thus been tailoring programs to allow the participants to apply the concepts in their day-to-day lives. So far, it has found community partnerships to be effective.

Scientific Sessions

Multiple sets of concurrent scientific sessions constituted the core of the AAAS annual meeting. Often, these sessions addressed science in its broader contexts, including that of communication. Reports on several communication-themed sessions follow.

The Reproducibility Revolution: Impacts on Science, Journalism, and Society

By Margaret Preigh

This session addressed the challenges science faces in reproducing results. It also addressed how members of the scientific community can contribute to the enforcement of responsible reporting practices.

Victoria Stodden, of the University of Illinois at Urbana–Champaign, opened the session by introducing 3 types of reproducibility: empirical, statistical, and computational. "Empirical reproducibility" refers to the physical manipulation of matter to see whether, when the same steps are repeated, a researcher finds comparable results. "Statistical reproducibility" asks whether a researcher has chosen the correct statistical tests. "Computational reproducibility" refers to how transparent the researcher's computational methods are and whether these methods can be trusted. Stodden noted that both statistical and computational reproducibility present new challenges in the modern era of big data. "There is a mismatch between traditional scientific dissemination practices and modern computational research processes, leading to reproducibility concerns," she said.

Daniel Engber, Ideas Editor at *WIRED*, expanded on this idea, invoking the phenomenon of p-hacking. When reproducibility concerns arise about more technical aspects of a study, such as techniques or statistics used, it can become difficult for a journalist to know whether their source is reputable. For this task, Engber recommended investigating items such as the credentials of study authors, research context, meta-analyses, and expert opinions on the topic. Engber pointed out that despite concern that a reproducibility crisis exists, public trust in science has remained constant, perhaps indicating that the public believes that the self-correcting nature of science will catch errors eventually, or perhaps indicating that the public just doesn't care.

Ivan Oransky, co-founder of Retraction Watch, closed the session by saying that although reproducibility concerns should be acknowledged by the scientific community, scientific misconduct is a far larger threat. Of the approximately 1,500 retractions Oransky catalogs annually on his blog, he said approximately 60 percent are clearly due to misconduct. Oransky's discussion concluded with the suggestion to adopt post-publication peer review, which allows for scrutiny of research beyond the initial review process. Such an approach could support the self-correcting vision of science, in which the scientific community acts as a watchdog to root out misconduct and reproducibility errors. However, Engber argued, science may not self-correct quickly enough.

During the panel discussion at the end of the session, questions came largely from scientists concerned with the conceptual nature of this problem. Because the lines between accidents, misconduct, and replication errors are thin, some scientists expressed concern that an accusational culture might be too quick to condemn researchers who have made honest mistakes. Discussant Simine Vazire, of the University of California, Davis, concluded the session by acknowledging these concerns and noting that further work

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within the community is necessary to ensure reproducibility and enforcement of responsible practices. "There is this uncomfortable gray area between honest error and misconduct," Vazire said. "Transparency is not enough. We have to actually check."

Detecting, Combating, and Identifying Dis- and Mis-information

By Sarah Allen

In this session, panelists discussed how to navigate "fake news" and stressed that it comes in 2 forms: misinformation and disinformation. Misinformation is unintentionally inaccurate, whereas disinformation is deliberately false or misleading.

Emma Spiro, of the University of Washington, said disinformation and misinformation saturate informal communication channels, especially social media. And on social media, this unverified, inaccurate information spreads much faster than other information, she said. A small rumor, for instance, can escalate to the national level through retweets. When the rumor's origin is malicious, the goal is not to convince people of anything specific but to "undermine trust," Spiro explained. People who create disinformation rely on other people to share their harmful content because social media users "make emotional decisions," she said. Spiro's advice: Pause and consider why something on social media incites emotion before reacting or sharing the information.

In contrast to Spiro, Dan Gillmor, of Arizona State University, hypothesized that traditional news media may be a greater source of misinformation than social media. Thus, he discussed mainly how shifts in the journalism landscape may affect fake news. For example, he said the 24-hour news cycle may encourage news outlets to generate stories—even if the sources for these stories are questionable. He said that journalists "sometimes on purpose, but hopefully only by mistake, are amplifiers for misinformation." But Gillmor emphasized that more research is needed on fake news and major news outlets. He also suggested that the public's lack of media literacy may contribute to the spread of misinformation. Gillmor recommended increased news education for students and also called on the media to be more transparent with consumers. "The media have a key role to play—journalists in particular—in helping improve these literacies," Gillmor said.

The final presenter, John Beieler, of the Office of the Director of National Intelligence, focused on how artificial intelligence (AI) systems can be manipulated to become less effective in detecting fake news. To spot fake news, AI systems are trained with a specific set of data, much as email spam filters are, Beieler said. If an AI system is trained to detect stop signs, for example, it will pick up any red octagon with white text in the middle. But if a red octagon with white text also has, say, a yellow square on it, the system will mislabel it. Beieler said people who understand this training trick the system to let disinformation slip through—a process called data poisoning. Beieler identified other reasons that AI systems inconsistently detect fake news, such as lack of word predictability. An AI system could never accurately predict the headline "A Fleet of M&M-Shooting Drones Is the Black-Footed Ferret's Last Hope" because M&Ms, drones, and ferrets are not commonly associated. "AI can be a helpful tool," Beieler said. "But it is just that: a tool."

Saving Science Journalism: Actions for Science Communication Researchers

By Jessica Scarfuto

The panelists at this session presented the results of 3 case studies in which science practitioners and communication scientists worked together to determine best practices for reaching out to public audiences.

Pamela Rosenstein, of NOVA, reported the results of a study that aimed to see whether social media can help users learn more and engage more deeply with scientific topics. NOVA partnered with the University of California, Santa Barbara, to assess user engagement for the multiplatform project NOVA Wonders, which was produced in spring 2018. The most effective technique, they found, was the use of simulcasts in which users could interact directly with the scientists. "We found that the semi-structured learning environment with an active facilitator was very important," Rosenstein said, contrasting it with a passive approach such as putting up some posts and hoping that someone will respond.

Craig Rosa, a producer for the web series Deep Look from stations KQED and PBS, along with Asheley Landrum, of Texas Tech University, presented the results of a study examining why Deep Look's audience was disproportionately male (70%). Deep Look is a YouTube series that by all accounts is successful, having 1.4 million subscribers and 200 million views. The gender disparity in its viewership could not be fully accounted for by the fact that YouTube's overall audience is 60% male. So, was YouTube's algorithm to blame for targeting more men than women in suggesting Deep Look, or were women simply less drawn to the content, which often focuses on arthropods, cephalopods, and other creepy crawly "gross" things? The researchers found that it wasn't so much the disgust factor that determined female audience but the topics themselves and titles. When the videos were about sex and romance, such as their video

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titled "The Ladybug Love-In: A Valentine's Special," that helped, Landrum said. Cute titles helped, too. "The only thing that seemed to push them away was when the titles had a lot of alliteration or assonance or consonance in them," she said.

Julia Griffin, digital science producer for PBS News Hour, and John Fraser, president and CEO of New Knowledge Organization Ltd. (now known as Knology), presented the results of a 4-year study looking at how to optimize science reporting to reach 18-to-35-year-olds. Early-career adults, they said, are relentlessly plagued by the stereotype that they have no attention span. But their research found that this was not actually so. "Rather, the majority have developed excellent editorial skills for navigating a wealth of resources and determining what's relevant and how to cull content that isn't efficient," Fraser said. Griffin and Fraser found that producing content with these things in mind, such as optimized videos to be viewed on Facebook, can have enormous payoff.

Science Communication Strategies for Building Relationships with the Public

By Ava English

Moderator Anthony Dudo, of the University of Texas at Austin, opened this session by stating that too often in science communication, scientists and science communicators prioritize the needs of science rather than those of the community. To bridge the gap between science and the public, Dudo said, the focus should shift from disseminating scientific information to building community relationships. The speakers at this session then discussed ways to work toward this objective.

To achieve individual connection, Jayatri Das, chief bioscientist at The Franklin Institute, presented a listening technique inspired by the motivational interviewing model. This technique is a person-centered form of guiding conversations to develop understanding between individuals. The motivational interviewing process involves asking open-ended questions, responding with affirmation, listening reflectively, and summarizing one's understanding from listening to one's partner. Das said that this communication method allows science communicators to demonstrate care for the people they are working with and additionally uncover shared values.

Nalini M Nadkarni, a professor at the University of Utah, reported finding common ground between scientific and faith-based communities by using trees as a symbol. Trees have both spiritual and ecological significance, Nadkarni said. She said that she studied various religious texts to find references to trees and visited churches to determine what occurs there. She then created a sermon that discussed the commonalities she had found between ecological and religious values. She offered this sermon to religious communities to share her findings. She also began mapping trees in churchyards with her students in order to continue developing this connection. Booklets describing species of trees growing in these churchyards and on other sacred grounds were then created for the congregations.

Nadkarni used the framework from this experience to develop the STEM Ambassador Program, which is intended to facilitate exchange between scientists and members of the public. "The goal was to build relationships with open-minded exchange," she said, "with a public emphasis on reaching those who cannot or do not engage with science by a traditional outlet." Information about this program is available at https://stemap.org/.[3]

The last part of this session focused on community inclusion in research. "We need to co-create science projects that have practical benefit to communities," Marilú Lopez-Fretts of the Cornell Lab of Ornithology said. The Cornell Lab has collaborated with the Metro Atlanta Urban Farm to develop the NOISE Project, which promotes understanding about the effects of noise pollution on human and environmental health through community education programs.

Bobby Wilson, CEO of Metro Atlanta Urban Farm, provided historical context, noting scientific institutions' longstanding lack of community involvement in identifying and addressing needs. "What you do for us, and not with us, is not for us," Wilson said. He said that working on the NOISE Project with the Cornell Lab has given him a seat at the table to address the needs of his community. Wilson also stated the need to bring more students of color into scientific institutions. Lopez-Fretts concurred, stating, "Different perspectives bring wholeness to scientific research."

Cultural Connections: Communicating Science to Communities and Congress

By Emma Stogsdill

Science communicators emphasize outreach, but often only some population segments are reached. At this session, speakers discussed sharing science with less-often-reached communities.

Kei Koizumi, who has long worked in science policy, began the session by discussing codeswitching between the languages of science and policy, relating it to experiences with intersectionality in his own life. He said, "Intersectionality is this theoretical framework for understanding how aspects of one's social and political identities, such as gender, race, class, sexuality, and disability, might combine to create unique modes of discrimination." He noted that "our multiple identities can create unique sources of being unique." The current standards for science communication,

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he stated, must shift toward accepting cultural differences in understanding as valid instead of recognizing these differences as incorrect or "other."

Another way to engage communities in science is by bringing children into the discourse. Parents often report that they had never believed that climate change was occurring, but when their children came home and showed them what was happening locally, they have been more willing to see science through a less political lens. As early as kindergarten, children are being asked to do things that a scientist would do. These ideas serve as a basis for Science Storytellers, a public engagement program in which children interview scientists and share their stories. "It's easy for a lot of us to forget in this field that not everybody gets the chance to talk to scientists every day," said speaker Jennifer Cutraro, founder and director of Science Storytellers. "Part of what we are aiming to do is to break down those walls and get kids and scientists to see each other as people."

José González, of Latino Outdoors, focused the final part of the session on how to be culturally responsive in communicating science. He said, "Culturally responsive science communication doesn't just literally translate, it also culturally translates, keeping codeswitching in mind." Codeswitching is the process of shifting between linguistic codes (languages or dialects) depending on the social or conversational context, often within a single conversation. But this can be tricky. "Avoid Hispandering," González said, noting the "fine line between acknowledging and patronizing an ethnic group." He warned against having one's biases inform the identity of Hispanic when communications are drafted.

The speakers told several stories about reaching people on their own terms. An overarching message was that doing so broadens and betters science communication.

Career Workshops

At the AAAS annual meeting, more than 2 dozen 90-minute workshops offered knowledge and skills for career development in science and related realms. The following sections discuss highlights from 2 of the workshops about communication of science.

How to Make Compelling Outreach Videos When Your Science Seems Dull

By Jessica Scarfuto

Your science might not involve chasing grizzly bears in Alaska, but that does not mean it's dull. With a little creativity, it can seem as interesting to everyone else as it is to you. This was the focus of the session presented by Colleen Harvey, Blake Fajack, and Emily Lea, who are graduate students in Montana State University's Science and Natural History Filmmaking program. The session was co-coordinated by Theo Lipfert and Sarah Lanier, both also of Montana State University.

Step 1 in making a compelling science video is to define your goals, Harvey said. Are you trying to raise awareness or to inform? Where and how do you plan to share your science? Are you making an hour-long video or a 30-second Instagram post? Defining these parameters will help zero in your focus for the next part: showing what you do. Whether you spend your days making models, writing equations, or using giant robots, this is the most important part of your job! If you are excited about it, other people will be too.

Once you have established an audience, purpose, and medium, it's time to look at delivery. One Hollywood trick? "If you want to be perceived as a genius, write equations on glass," Harvey said. Or, for a more nostalgic feel, chalkboards might be the way to go, since they are viewed as romantic and historical. Or if writing or drawing doesn't work well for your branch of science, using physical models or props might be an option.

Fajack presented tips for making high-quality videos on a budget. "The only thing a professional camera will give you over a regular camera is freedom of the settings," he said. This means that using an iPhone or GoPro is fine as long as you can control your environment. A variety of smartphone attachments such as fisheye lenses, ring lights, and external microphones are both affordable and readily available, and they can significantly improve your video quality.

Lea then spoke on the importance of sound in making a compelling video. "You can have absolutely stunning footage, like BBC quality, but if your sound is going in and out … eventually it's going to become completely unbearable to watch," she said. So how do you get clean audio? First and foremost, be aware of your surroundings. You might not notice the sound of air conditioners, cars driving by, or centrifuges in the room, but they can be incredibly distracting to viewers. Lea recommended trying to turn off everything you can in the room (as long as you remember to turn it back on!) and, if you need to record just the audio, get creative! Recording under a blanket, speaking into a full closet, or getting in your car to drive to somewhere quiet are a few of her tips.

Whatever method you decide to use, make sure the message is simple, Harvey said. "If someone can't explain it back to you, it needs work."

The (Gross) Anatomy of Responding to Peer Review Commentary

By Emma Stogsdill

Gross anatomy is concerned with the structure of organs and tissues visible to the naked eye. In contrast, peer review can be "completely opaque" and "difficult to discern,"

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said Andres De Los Reyes, of the University of Maryland, College Park. In this workshop, De Los Reyes provided information and advice that can help authors move the peer review process from something so vague into something as apparent as gross anatomy. Key points from De Los Reyes, a psychology professor who is active in research training, included the following:

- *Authors have a say in who will review their manuscripts.* By choosing journals on the basis of their editorial boards, or by suggesting reviewers, authors can tailor their submission experience.
- *An editor at the journal reads the manuscript and peer reviews and decides to either accept, reject, or provisionally accept a manuscript.* Many manuscripts fall into the "revise and resubmit" category. In this case, the author revises the manuscript in accordance with reviewer commentary and returns it for further consideration. If a manuscript doesn't make the cut, the author should be told as soon as possible, so that submission to another journal can proceed.
- *Emotionally charged responses rarely pay off.* Before addressing the requests for revision, authors should let the editor's decision sit until they are confident in their ability to respond reasonably.
- *Authors should embrace revision with open arms.* "When we are submitting our papers for review, we are getting free advice from our reviewers—take that advice to heart," De Los Reyes said. Although it may be difficult, the author generally should make all of the suggested changes. "The review and resubmission process will take a month or less if you commit to addressing one comment every day," De Los Reyes said. If there is something an author cannot bear to change, there must be an airtight reason to keep it. In this situation, De Los Reyes suggested to either cite the data that led to that decision or admit that there may not be enough data to make the requested change—noting it as a limitation of the study.
- *Tiny errors can be seen as indicating sloppy work.* Therefore, authors should be thorough when proofreading manuscripts for resubmission.
- *The cover letter accompanying a resubmission should conclude with a broad acceptance of future revisions.* Saying something like "We would be pleased to make any further revisions" reminds the editors and reviewers that the author is eager to publish and is willing to endure their scrutiny, as difficult as it may be.

Although everyone's experience will vary, awareness of these points can streamline the peer review process for authors and editors alike.

The 2021 AAAS annual meeting, themed "Understanding Dynamic Ecosystems," will convene entirely online. Plans for the meeting, to be held February 8–11, are continuing to evolve. For the latest information, see https://meetings.aaas.org/.[4]

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CSE Past President Monica Bradford Inducted as AAAS Fellow

Barbara Gastel

Each year, the AAAS annual meeting includes induction of newly elected AAAS fellows. In the words of AAAS, fellows are AAAS members whose "efforts on behalf of the advancement of science or its applications are scientifically or socially distinguished." Members who were inducted as fellows at the 2020 annual meeting included Monica M Bradford, executive editor of *Science*. Bradford was recognized "for advancing science through longstanding and forward-thinking leadership at *Science* magazine and through contributions to the scientific-publishing community."

Bradford, who has a degree in chemistry, began her editorial career in 1980 at the American Chemical Society, starting as an editorial assistant and ultimately becoming manager of the manuscript office. She moved to AAAS in 1989 as assistant managing editor of *Science* and was promoted the next year to managing editor. Since 2002, she has been executive editor of *Science*. During her time with the publication, she has served with 7 successive editors-in-chief. Currently she is one of the longest-serving members of the *Science* editorial staff.

Over the years, Bradford has helped *Science* navigate and benefit from technological and other changes in scientific publication, serve as a model for other journals in these regards, and contribute to this evolution. She led the team responsible for moving *Science* online in 1995, partnered with technologists to institute cloud-based peer review, and has played leadership roles regarding new online features and products. With editors-in-chief of *Science*, she has developed policies on authorship, conflicts of interest, scientific misconduct, and availability of materials and data.

Monica M Bradford and AAAS President, Steven Chu.

A CSE member for over 30 years, Bradford was CSE president in 2006–2007. Recently, she has spoken at the CSE annual meeting sessions "Editorial and Publishing Questions: Data-Informed Solutions" and "Preventing and Addressing Workplace Harassment: Initiatives by Publishers and Organizations." She also has given many other presentations in the field and has contributed to workshops on topics such as ethics, retractions, reproducibility, and online publishing.

BARBARA GASTEL is a professor at Texas A&M University.

Storytelling for a More Equitable Open Science Enterprise

MODERATORS:
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American Society of Civil Engineers
Reston, Virginia

SPEAKER:
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National Library of Medicine
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REPORTER:
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Minneapolis, Minnesota

Within Scientific Discovery, There's a Story to be Told: Pathways to Open Science and Public Engagement

Stories focus on relatable characters and relatable events and can change cultural perceptions. Storytelling in science enables the public to engage with science andto understand that scientists are part of the public, too. Dr Maryam Zaringhalam, the Data Science and Open Science Officer at the National Library of Medicine's Office of Strategic Initiatives and a senior producer for The Story Collider, presented "Storytelling for a More Equitable Open Science Enterprise" at the Council of Science Editors (CSE) 2020 Annual Meeting. Her presentation emphasized that storytelling in science can helpgain public trust in science, help people see the motivations that drive the research, and help the public understand that science has failures. Dr Zaringhalam's presentationfocused on characterizing what successful open science looks like. She supported her research with examples of knowledge exchange strategies to increase public engagement within the scientific enterprise. Dr Zaringhalam cited storytelling and community science as powerful tools in opening the lines of communication between scientists and the general public.

Collaborative Science

Dr Zaringhalam believes the ultimate goal of open science is to make the research enterprise more cooperative and collaborative. Collaboration helps ensure the products of science discovery extend benefits to as many people as possible. Extending knowledge to as many people as possible requires gathering nonexpert perspectives and incorporating them into how researchers think, talk, and execute science.

Dr Zaringhalam sees the general public as partners in research, as opposed to participants, because science depends on their feedback, voice, perspectives, needs, and experiences. Engaging with the general public creates a pathway for a knowledge exchange feedback loop.

Knowing Your Audience

It is imperative to know your audience when trying to communicate science. Knowing your audience presents a challenge, especially in the United Statesbecause it is a diverse country. When data is collected broadly, the science includes diverse knowledge, and offers greater potential for far-reaching impact. When the benefits of science are vast, science becomes more powerful in its ability to help and support people. Breaking down barriers between the general public and scientists is mutually beneficial because the research becomes more valuable and practical when it is accessible to a greater number of people.

Dr Zaringhalam introduced the audience to the National Institute of Health's *All of Us* Research Program.[1] Launched in 2019, the goal of this program is to bring together 1 million participants to donate their information for research to help tailor health research to individuals.

When science includes the lay public as the *All of Us* Research Program does, it creates a framework of equity and inclusion. When the framework of science focuses on diversity,

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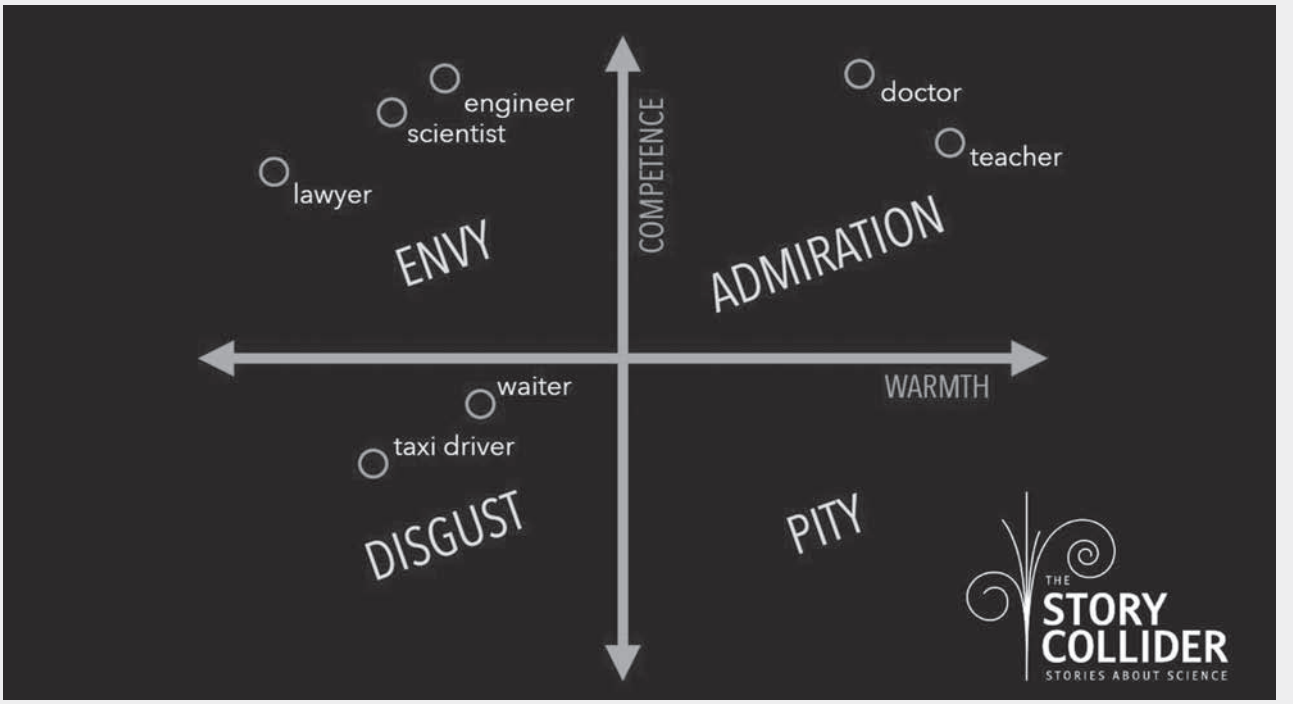

Slide developed by Liz Neeley, Executive Director of The Story Collider.

equity, and inclusion, it can reduce skepticism around science by building trust with a broad range of communities. Developing trust can create an inclusive culture by making the general public feel like they are a part of science, that science is for everyone, and that scientific researchers are striving to benefit as many people as possible.

Storytelling to Communicate Science

Storytelling is paramount in science communication because when people do not have the tacit knowledge from their personal experiences, they consult with people they trust in their social circles. When stories are delivered by the right messengers to the right communities, they can elicit understanding. Dr Zaringhalam described a study¬ on perception and stereotype formation that was conducted to identify the qualities of competence and warmth.[2] The presence of these qualities engendered people's trust, credibility, and the belief that experts would act in their best interests. Gaining admiration requires warmth, and storytelling can create bonds that put scientists in the admiration quadrant.

Why Storytelling Can Effectively Communicate Science

The Story Collider,[3] where Dr Zaringhalam works as a producer, definesa story as something that has a beginning, a middle, and an end, with something that changes in the middle. Using this structure of storytelling works when communicating science because science is continually changing the world's story. When scientists share their stories at The Story Collider, they are the characters, and scientific discovery is the plot. By its very nature, scientific research is set up to tell a story—who investigated what, when, where, why, how, and why do we care? Sharing science as a story humanizes scientists because it lets them share what they discovered and allows them to show how it contributes to society. Storytelling takes facts out of a vacuum and connects findings to the bigger picture. When Dr Zaringhalam advises scientists about how to tell their stories, she encourages them to say what drew them to conduct research and to be themselves. When scientists are telling their stories, they should be honest and share their hopes, fears, perspectives, and voice because vulnerability develops a pathway to make inroads with different communities.

Successfully Sharing Stories

Throughout her presentation, Dr Zaringhalam used audio bites of scientists telling their stories to demonstrate real-life successes that can be gained by using storytelling to communicate science.

Dr Ali Mattu,[4] a psychologist and a science communicator, was drawn to his research in exposure therapy because of his own experience with anxiety.

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Dr Megan Hatlen,[5] a cancer researcher who now works at a biotech start-up, shared challenges she faced when completing her PhD and the obstacles she overcame to get to where she is today.

Dr Tracy Dickson-Salazar[6] decided to become a neuroscientist when her daughter was diagnosed with an extremely rare form of epilepsy. Dr Salazar realized scientific research papers are not written in formats that are accessible to the public. "You really shouldn't have to get a PhD to figure out what's wrong with your kid and to do the research yourself to find the medicine behind the science and then convince the physicians to try that," said Dr Dickson-Salazar.

St Louis pediatrician DrKen Haller[7] shared his story about a young patient in the 1980s with a mysterious illness, which he later learned was an early case of HIV/AIDS. He shared what it was like to work on the frontlines during the height of the HIV/AIDS epidemic, "I didn't know then that this day would mark the split between before and after in my life and that I would be one of the survivors to tell the story," said Dr Haller.

Every storyteller should aim to foster an inclusive environment. Dr Zaringhalam says she always considers the audience and the information she is trying to convey, and then determines what she is trying to communicate. Science communicators do not need to be experts, but they need to be invested in a particular area to lead people. Communicating science is a gateway into experiences that allow people to empathize with each other to cultivate a sense of understanding and belonging.

In addition to Dr Zaringhalam's work with National Library of Medicine, she also serves on the leadership of 500 Women Scientists, working to make science open, inclusive, and accessible. Creating more open and equitable science is possible with storytelling. Storytelling helps ignite curiosity, provides a public window into what drives research, and can change facets of the relationship between science and society.

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"The All of Us Research Program aims to engage a diverse community of participants from across the United States, especially those who have been underrepresented in past biomedical research." Credit: NIH. For more information, visit https://allofus.nih.gov/.

Knowledge Exchange: Roundtable Discussions

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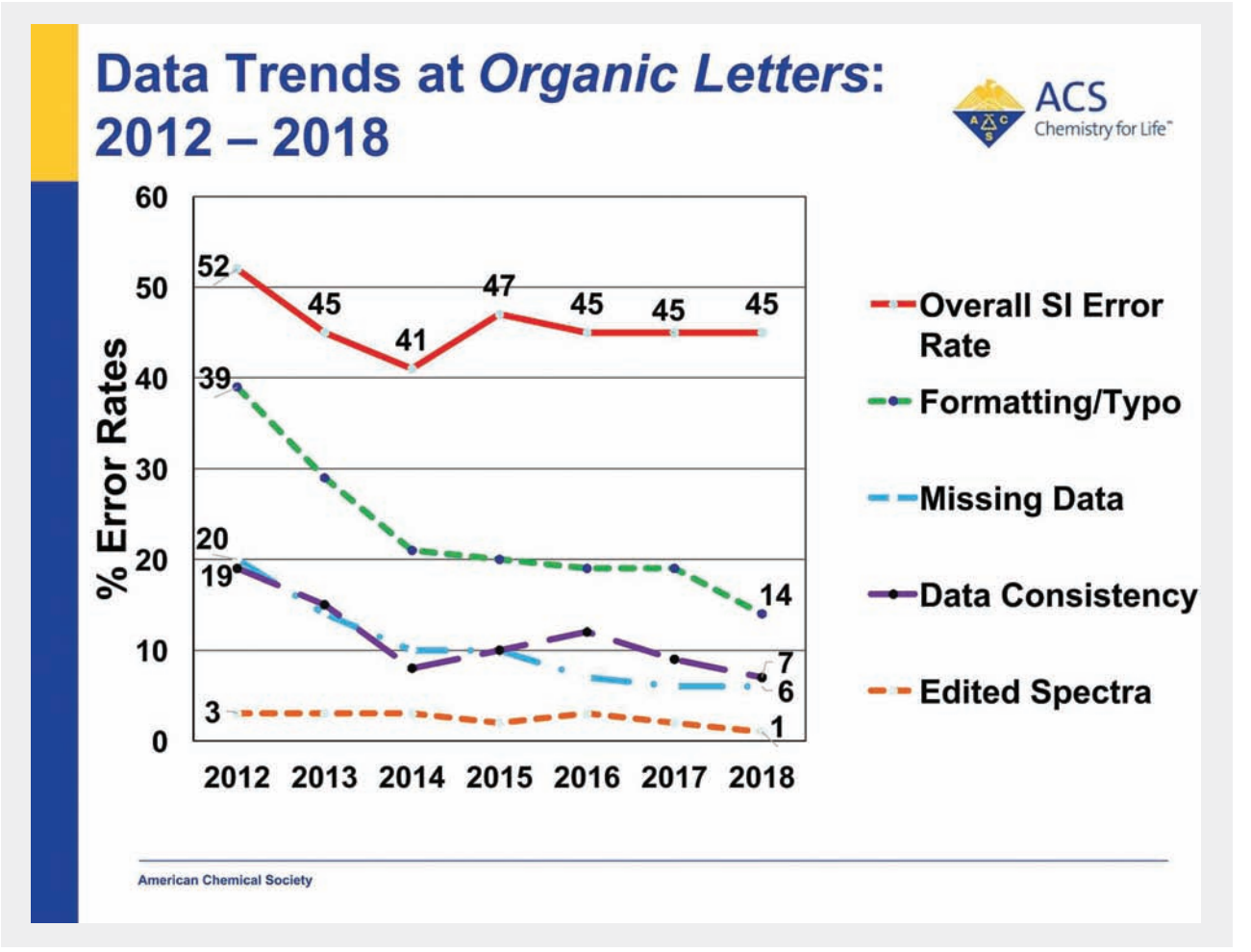
Publishers are increasingly striving to help authors make accurate and accessible data available not only to reviewers but also to readers. Many are considering workflow changes and new partnerships to help achieve this goal. To this end, this roundtable discussion brought together two experienced professionals to share their perspectives on validating and publishing data.

Angie Hunter, Development Editor at the American Chemical Society, delivered a presentation on "Data Review and Initiatives at *Organic Letters*," in which she reviewed the journal's data analysis program. *Organic Letters* encourages, but does not require, its authors to submit raw data with their manuscripts. In response to often missing and incorrect data (and less often, manipulated data), Hunter and her team have developed a process for the editorial office to analyze data for accuracy and quality. Most of the work takes place once a revision is requested and then submitted. Data is reviewed for consistency with the submitted manuscript, and experimental procedures are checked for accuracy. The



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editorial office also reviews images for accuracy, legibility, and possible falsification.

Hunter emphasized that although edited data or spectra comprise the smallest percentage of data analysis problems, they are often the most time-consuming to deal with. She also emphasized that the response from authors who have submitted edited data or spectra is mostly positive; authors are generally glad to be made aware of inaccuracies and have the opportunity to correct them.

In addition to checking manuscript data, Hunter's office has developed checklists and standards for authors to follow when submitted to *Organic Letters*. Author education efforts such as these have helped reduce the editorial office's data analysis workload. Figure 1 shows how *Organic Letters* has seen a reduction in various types of data-related errors from 2012 to 2018.

Gregory Schwarz, Data Editor at the American Astronomical Society (AAS), gave a presentation titled "Data behind the Figure and Interactive Figures in the American Astronomical Society Journal Articles", focusing on two of many data products that AAS produces. The Data behind the Figure (DbF) program ensures that the data used in an article figure is available in common formats for preservation and reuse, ultimately increasing article citations. In AAS's process, one of two data editors will convert the data provided into an acceptable format for publication, to be verified by the authors. AAS authors may also submit interactive figures to provide further clarity to readers. Authors may provide data, JavaScript, and HTML components that conform to AAS's publishing platform, and these figures are made available both in the published article and in the separate Astronomy Image Explorer on AAS's platform.

Schwarz emphasized the importance of flexibility and innovation as data formats and standards change over time, citing several examples from his tenure at AAS. He also encouraged publishers to adopt best standards for data formatting and sharing and partner with appropriate third parties to provide greater convenience for authors and staff. His final advice was that publishers set priorities that allow them to realistically manage the workload of formatting and verifying data, and to not let the fear of failure prevent them from pursuing better data availability and quality.

Hunter and Schwarz both have experience developing robust data analysis and curation programs and emphasized the value of having dedicated staff for data analysis and curation; subject area expertise is also a significant boon. They also stressed the importance of clear and consistent communication with authors and internal editorial teams.

Hunter and Schwarz's discussions illustrated the variety of workflow options available to publishers interested in more intensively curating data for publication. Both made convincing arguments for the value of such work while also realistically outlining its challenges. Data transparency and sharing are becoming more of an expectation every year; publishers will need to find models for data curation that work for their authors and their budgets.

Improving Peer Review One Case Study at a Time

MODERATORS:
Tamara Hanna
American Chemical Society
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SPEAKER:
Sonja Krane
American Chemical Society
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Clarivate Analytics
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Erika Pastrana
Springer Nature
New York, New York

REPORTER:
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Washington, DC

Peer review is a constantly evolving and vital aspect of scientific publication. Journals rely on editors and reviewers to volunteer their time to ensure that quality, well-vetted research is published. With such a large ask, the industry is regularly improving upon and inventing new tools to aid editors and reviewers. This session,"Improving Peer Review One Case Study at a Time," highlights three case studies that show promising innovation that is working to reach this goal.

Matthew Hayes, Director of Publons, began the session discussing transparent peer review, which allows for more visibility of the process and recognition of reviewers. Due to the growing interest amongst reviewers and publishers to adopt this type of model, a transparent peer review model in partnership with ScholarOne was created, which fits within the established workflows and systems of the journal. Hayes also highlighted that the difference between "transparent" and "open" peer review is that the transparent model allows reviewers to choose to have their review published but remain anonymous.

With this model, the submission system collects peer review content, along with author and reviewer options, and sends it to Publons. The publisher sends a feed of the accepted articles to Publons, which then creates the article and peer reivew pages, registering the peer review content with a DOI. After the article publishes, the peer review content is triggered to publish on Publons. The Publons badge appears on both pages, linking the published article with the published peer review content. If the reviewers have chosen to reveal their identity and have a profile with Publons, readers will also be able to access their profiles.

During the presentation, Hayes invited Simon Harris, Managing Editor at IOP Publishing, to present the results of their case study with this model (Figure 1).

Given the success of this model, IOP Publishing is looking to expand it to their other Open Access journals, and Publons is looking to partner with other publishers.

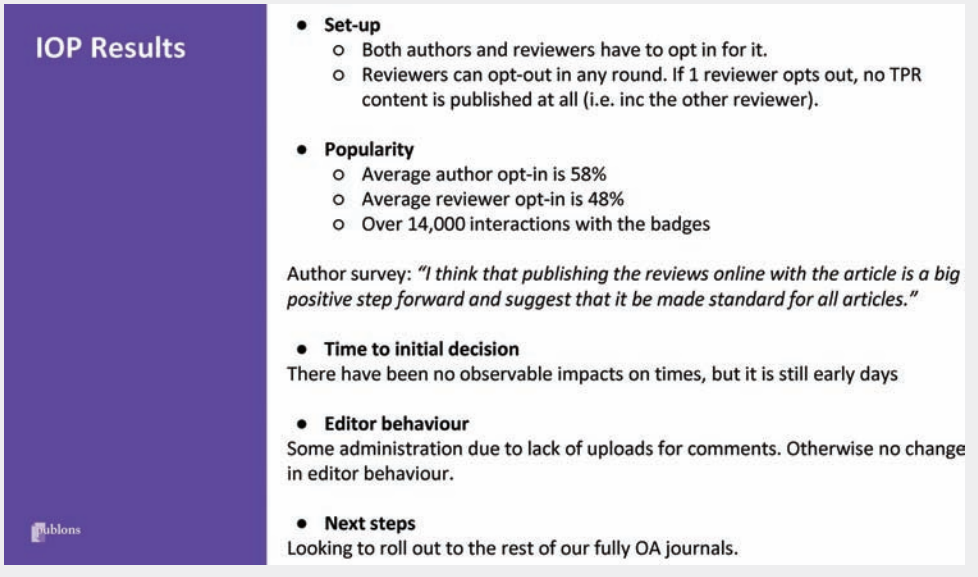

Figure 1. Results of IOP Publishing's case study with Publons.

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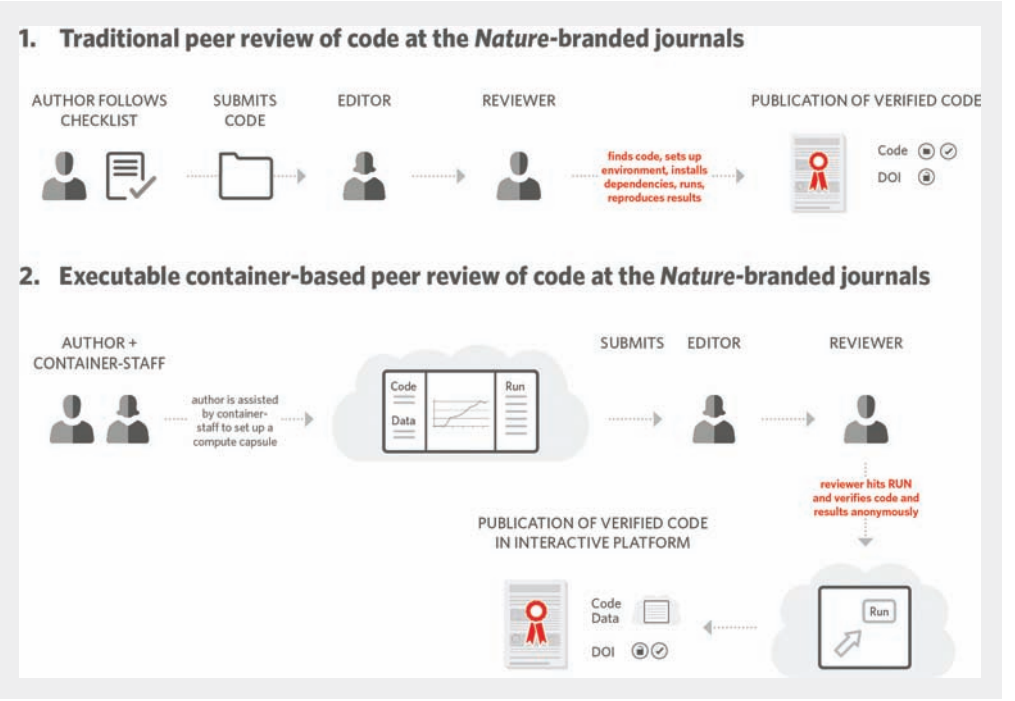

Figure 2. Traditional peer review of code vs. container-based peer review at *Nature* journals. Reproduced from Pastrana et al.[1]

The goal of this project is to focus more on the community aspect of peer review.

Erika Pastrana, Editorial Director at Nature Journals, gave the second presentation on integrating code publication and peer review. Code is becoming more and more essential to research papers, and thus an important part that should be reviewed. Properly documenting, reviewing, and sharing code was the goal of this case study.

Asking editors and reviewers to review code through the traditional review process can be very cumbersome and time consuming. Utilizing a container platform that hosts the code, data, and all the necessary environments allows for running the code on the cloud in order to reproduce the results. This offers advantages to authors, reviewers, and readers. Springer Nature partnered with Code Ocean to create this platform. Authors were given the option to opt into this pilot at submission. If they opted in, they set up a Code Ocean capsule (code container), and the link to this capsule was shared privately with the editors and reviewers. If the paper was eventually accepted, the readers would also gain access to this capsule, which was given its own DOI for proper recognition, citation, and code re-use (Figure 2).

Over 50% of the authors opted into the pilot study and every link that was sent to reviewers was accessed. Six months into the trial, data showed that readers also engaged with the capsules, viewing them on average 122 times and running the code an average of 14 times. This has become a standard editorial practice now at several Nature journals and they are looking into expanding this practice to more journals.

Sonja Krane, Associate Publisher at the American Chemical Society (ACS), concluded the session with her presentation on AI-assisted tools. In order to help counteract reviewer fatigue, they created a stand-alone tool to help recommend appropriate reviewers in their database to the editors based on reviewing and publication history. The goal was to identify expert and reliable reviewers to avoid increasing the number of invitations sent to unreliable or unresponsive reviewers. A small-scale pilot study with about a dozen editors is currently underway.

Another area where an AI tool can be of use is with manuscript transfer. 75% of rejected ACS papers were eventually published in non-ACS journals. As a publisher, it is ideal to guide authors to transfer their papers to another journal within the publisher family, and authors have an interest in transferring rather than resubmitting elsewhere. For this case study, they initially asked authors to choose where their papers should be transferred but authors did not choose the most appropriate journals. They then utilized the stand-alone AI tool to help editors choose which journals the papers should transfer to if they were rejected (Figure 3).

This worked well and papers given a reject with transfer option were much more likely to be accepted at the second journal. Additionally, during an author survey they

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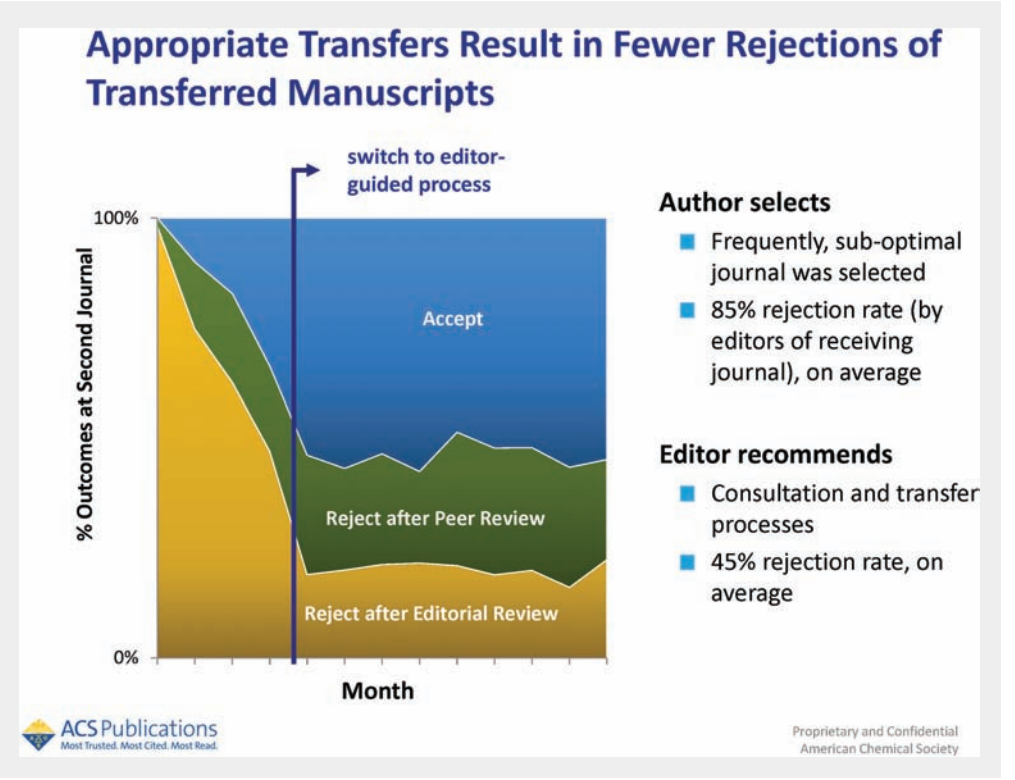

Figure 3. American Chemical Society (ACS) results wheneditors guided the process of transferring rejected manuscripts to other ACS journals.

discovered that authors who were given a reject decision with transfer option were more satisfied than authors given a reject decision with no option to transfer. These AI tools have proved useful and the hope is to be able to fully integrate them with their submission system, ScholarOne, in the future.

The "Improving Peer Review One Case Study at a Time" session at this year's first virtual annual meeting showcased a wide range of models and tools that can make the peer review process more complete and transparent, while less cumbersome and time-consuming. All three presenters demonstrated great promise with their case studies, and it will be interesting to see where these innovations take peer review in the near future.

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Working with Multi-Language Authors

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American Society of Civil Engineers
Reston, Virginia

SPEAKER:
Ben Mudrak
American Chemical Society
Durham, North Carolina

Bryan Hamman
Khon Kaen University
Khon Kaen, Thailand

Adriana Romero-Olivares
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In a brief introduction, moderator Dana Compton summed up the purpose of this talk: "How can we make the publishing process as positive as possible for all authors around the globe while ensuring highest quality publication?" The term "multi-language authors" came from a tweet by Ignacio Escalante (@RandallIgnacio), who was referring to a comment made by a workshop attendee (Figure). It seemed fitting to use this inclusive, positive term rather than "English as a second language" (ESL).

First, Ben Mudrak of the American Chemical Society (ACS) set the stage from the publisher perspective. The ACS received submissions from 141 countries and territories in 2019—clearly, research is global. Ben discussed the results of a published survey[1] that asked 2500 multi-language authors about the top challenges faced when submitting to an English-language journal. The top 2 answers were "correcting the English text of my manuscript" and "responding to reviewers' comments." In addition, 33% said they would like resources for editing or translating their manuscripts. Respondents were asked to rank ways they thought publishers could help, including providing templates for the manuscript format, suggesting other journals that may be a better fit, listing resources for translating the manuscript, and making the website user friendly.

In response to author feedback like the survey, ACS created the ACS Authoring Services site[2] to provide help with editing, translating, formatting, and figures. "Let ACS connect you to our language editors, translators, and other experts to help showcase your science at its best. When your ideas are written clearly, you can improve the impact and distribution of your work." There is also the ACS Reviewer Lab, a course about how to effectively review a paper. This is available in Chinese and Japanese. Other ideas include to providing a template, suggesting other journals to submit to, having clear instructions, and giving sample websites that provide similar services.

Next, Bryan Hamman, a soil scientist and ESL teacher, talked about tips when working with multiple languages and cultures. He started by mentioning how Jeff Bezos, CEO of Amazon, banned Power Point presentations for proposals at Amazon, and instead required staff to write a 6-page paper about the concept or product. Writing is a learned skill that needs to be carefully taught, especially to multi-language authors. "There is an inherent risk in missing research and authors on the basis of 'perfect language.' It's in the interest of the West and Western publishing to keep lines of communication open."

Hamman reflected on his immersion experiences in Québec, México, and Thailand to relate the difficulties in learning a new language. After a year in Thailand, although he could speak the language, he was far from mastering reading or writing it. Teaching usually focuses on speaking, but writing requires a different set of skills. When editing, it is important to preserve the author's voice and context. Inject humanity, humor, and constructive feedback with

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suggestions on alternate wording, if needed. Editors can and should be supportive coaches. Bryan talked about how a manuscript can be seen as a back-and-forth dialogue, a way to work with an author until both parties are confident in the work.

To end, Hamman told a personal experience he had abroad: As a volunteer in Thailand, Hamman was exploring the benefits of different treatments on rice crops. When he had to go out of town for a few weeks, he asked the Thai landowner Mother Buito watch the crops; misunderstanding, she tended to the crops, using fertilizer to help everything grow. She did not understand that Bryan was trying to learn about the effects of different treatments on the crops. This well-intentioned farmer can be a metaphor for the editor who unintentionally over-edits and possibly usurps the author's voice or context.

Finally, researcher and published author Adriana Romero-Olivares gave tips to reviewers working with multi-language authors. In October 2019, Adriana published an article in *Science*, "Reviewers, don't be rude to nonnative English speakers."[3] She built on this in her talk about how reviewers can provide constructive feedback without being disrespectful. A comment on the Facebook page "Reviewer 2 Must Be Stopped" summed up the problem well: Some reviewer comments have a tone along the lines of "You came from the wrong country to write in our journal, find a native English speaker to sponsor you."

Instead, reviewers should find ways to provide feedback while being polite. Romero-Olivares gave examples of problems with suggested solutions. For example, reviewers will often recommend the use of a "native English speaker," but this is sometimes based on implicit bias. A suggested solution is to use a double-blind or open peer review, decreasing the chances for a reviewer to make suggestions based on the author having a foreign-sounding name. Regarding open peer review," most people are not rude nor unkind when they know they can't hide behind anonymity. Open peer review systems provide accountability."

Another example problem is that poorly written papers do exist, and many multi-language authors do need help. Romero-Olivares suggested the use of resources for authors as a solution, as Mudrak showed at the beginning of the talk. Other suggestionsto similar problems include developing partnerships with local science writers and translation companies; trying to improve the writing quality before peer review; having an FAQ page for reviewers; and having proactive editors—for example, providing a list of resources for authors.

As we saw in this talk, there are many ways to provide constructive feedback to authors while maintaining a positive author-editor-reviewer relationship, but it requires keeping the lines of communication open.

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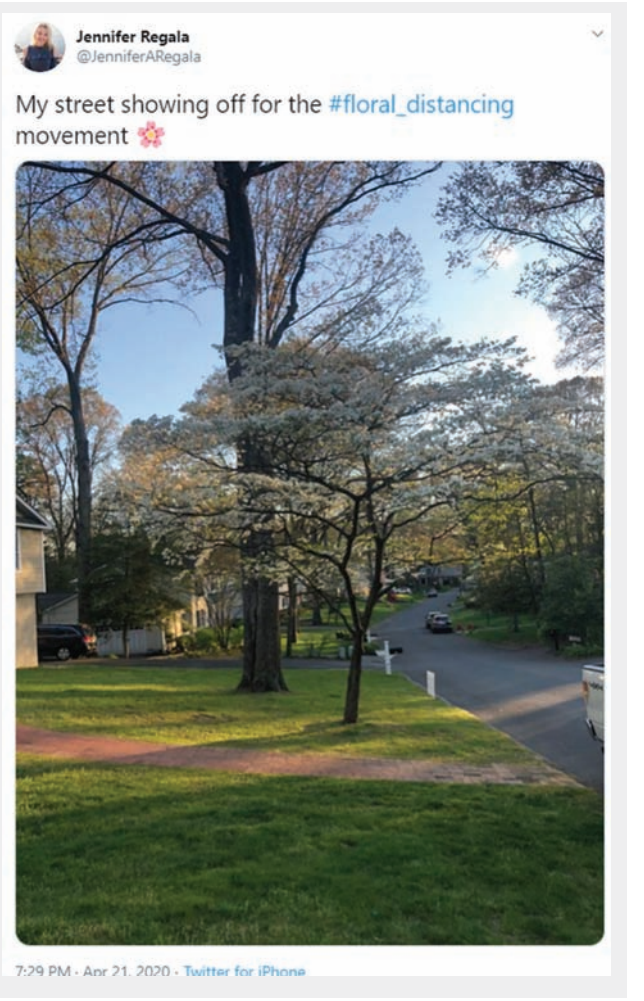
Social Media in a Pandemic: Virtual Connections While Social Distancing

Jennifer Regala

When I first proposed this social media column idea to Jonathan Schultz, Editor-in-Chief of *Science Editor*, back in December of 2019, I submitted a list of future content ideas to him, including how to build community using social media, how to use social media as a career enhancer rather than a distractor, and social media best practices and common mistakes. These all seemed like great ideas to write about just a few short months ago. And then along came COVID-19, and our lives changed forever. As we struggle collectively and individually with illness, not seeing loved ones and friends, job loss, working away from our colleagues, distance learning, Zoom fatigue, increased or decreased article submissions, lab and library closures, securing face masks and hand sanitizer, and so much more, there is one place I have turned to that makes it feel like I'm not 6 feet away from my personal and professional networks: social media. I have noticed that I am not alone in finding refuge and solace on Twitter, Instagram, and LinkedIn. I offer that social media has become more important than it ever was before, and in many cases, it is sustaining some of us (*raised hand emoji* from me) through the worst crisis in modern history.

At the American Society of Plant Biologists (ASPB), our researchers have been adversely impacted by the deadly spread of this virus. Lab and greenhouse closures, the inability to plant entire fields of crops, loss of childcare, and moving college classrooms abruptly online have had devastating effects on our members, editors, reviewers, and authors. Very early in the crisis, the editors-in-chief of ASPB's journals (*The Plant Cell*, *Plant Direct*, and *Plant Physiology*) joined together with editors-in-chief from other plant research-based societies (*Journal of Experimental Botany*, Society for Experimental Biology [SEB]; *Plant Biotechnology Journal*, SEB and the Association of Applied Biologists; and *The Plant Journal*, SEB) to pen an editorial about "no-excuse extensions" of all deadlines.[1] Though all the journals published the editorial, and ASPB posted the content on our organization's web site, we were able to disseminate this vital information quickly to our large number of followers on Facebook and Twitter. ASPB has also used social media to communicate other important COVID-related updates, including announcements about our annual meeting.

Another thing we at ASPB noticed early on in the crisis is that our beloved community members were missing human connection, too. My co-workers, Katie Rogers (@ktlrogers; fondly known as ASPB's Webinarina) and Mary Williams (@PlantTeaching; well-known science communications Twitter personality and beloved icon of the plant biology community), saw a need to allow our members to continue their learning opportunities and/or present their important



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work after seminars and conferences all over the world were canceled. They quickly and brilliantly developed Plantae Presents (the hashtag #PlantaePresents is quite prolific on Twitter) on ASPB's digital ecosystem, Plantae.org[2] (@Plantae_org). This seminar series has been extremely well-received and has enjoyed record-breaking attendance. Katie and Mary have used social media to enhance the seminar experience, using the series hashtag to allow individuals to live-tweet the events and to add questions and comments to the conversation once each event ends.

For me, the cancellation of the annual meetings hosted by the Council of Science Editors and the Society for Scholarly Publishing, user group meetings hosted by vendors, and other industry events, has been hard. I look forward to those gatherings for the networking opportunities and professional interaction. Plus, many of my scholarly publishing colleagues have become dear friends. I have used social media (particularly Twitter) to fill this massive void. CSE's very own Past President, Dana Compton (@danamcompton), has a home office that makes me drool (best #shelfie in town). Marie McVeigh (@JopieNet) has inspired me to find the beauty in my surroundings with her beautiful daily #Floral_Distancing shots. Yael Fitzpatrick (@GazelleInDminor) has shown me what true strength and friendship really are. Angela Cochran (@achochran12733) wows me with her wisdom but then makes me cry with laughter with her distance learning stories from the trenches. Rob Last (@Biokid001; ASPB's Immediate Past President and a world-renowned scientist from Michigan State) heard my tweeted plea for help in making sourdough bread and mailed me not only a sourdough starter but priceless yeast as well. Also participating in this bread conversation was Susan Willner (@SusanWillner), who so lovingly and thoughtfully dropped by my home (keep in mind that I live in Maryland, and she lives in Virginia!) to drop off a loaf of challah bread she baked. I don't think I have ever smelled anything quite so divine, and it was even still warm in the box! Much to the chagrin of my teens, I have taken up one more form of social media (Houseparty—it's not just for the kids!) thanks to Alexa Unser (@weequipped) and Karen Stanwood (@KGStanwood), so that we can talk about publishing, organizing our pantries, lip gloss and nail polish, and "momming so hard." As I write this, I realize that my professional bonds have deepened in ways I could never have expected by using social media consistently and intentionally during this pandemic. I am checking in on my ASPB and scholarly publishing connections, sharing advice and asking questions, and keeping up with the scary world in a way I can manage and control.

A #Floral_Distancing contribution, courtesy of Marie McVeigh (@JopieNet).

I wish each one of you health and safety and love during these scary times. I would also love to hear from you. Since I wrote my first column and because I was fortunate to lead a recent CSE happy hour in a lively discussion about social media, I have met so many new faces and am learning more from them about how their journals handle social media, professional concerns that are important to them, and so much more. I propose that our scholarly publishing community use this time of uncertainty to lean on one another to advance not just our profession but each other. We are all struggling, but there are a lot of people out there in our social media community ready to help. I am so proud of our scholarly publishing community.

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2. https://plantae.org/

Are Eponyms Your Achilles Heel?

Stacy L Christiansen

Scientific nomenclature abounds with terms that take their names from people or places, be they discoverers, regions, or individuals unfortunate enough to have a particular disease or condition. These terms are known as *eponyms*, from the *Greek epi* (upon) and *onoma* (name).

What's in a Name?

Individuals who work in the health care field and those of us who write and edit about medicine are thoroughly familiar with eponyms. Some are incredibly common, such as Alzheimer disease, non-Hodgkin lymphoma, Apgar score, and Parkinson disease. Others crop up in more specialized contexts, such as Kaposi sarcoma and Zollinger-Ellison syndrome. Sometimes they are technically *toponyms*, named for the presumptive origin of the condition or pathogen (e.g., Lyme disease, Ebola virus).[1]

Eponyms are not limited to medicine, of course. They occur in many other scientific fields, such as chemistry (the Avogadro number), physics (dalton), geography (Richter magnitude scale), statistics (Bonferroni adjustment, Fisher exact test), and astronomy (the Fermi paradox), among many others. They are prevalent in history and sociology (the Victorian era), architecture (Georgian style), and even policy (Obamacare).

But just because a term has a catchy name or we are used to hearing it, does that mean it's the best label? As noted in the *AMA Manual of Style*, "Correct use of eponyms should be considered with a view toward clarity and consistency, the awareness that meanings can change over time and across cultures, and a desire to minimize misunderstanding."[1]

Many years ago, I was in a meeting in which the editors of *JAMA* were discussing submitted papers, sorting them into piles of accept, revise, or "no thanks." In the middle of a presentation of a paper in which the eponymous term *Lou Gehrig's disease* was used repeatedly, a non-US editor interrupted with a curt demand for an explanation of who Lou Gehrig was. (Answer: New York Yankees slugger who retired early when his performance began to be affected by symptoms of amyotrophic lateral sclerosis [ALS].)

Lou Gehrig

That anecdote illustrates why sometimes an eponym, especially one with a regional basis, may not be the best nomenclature to communicate to a global audience.

That's not to say eponyms are not useful terms for communication: No confusion results with the terms Alzheimer disease or Tourette syndrome. Placing a descriptive term, if one exists, in parentheses after first mention of the eponymous term (or vice versa) may be helpful, e.g., amyotrophic lateral sclerosis (Lou Gehrig disease) or Stevens-Johnson syndrome (bullous erythema multiforme).

Where Did the 's Go?

The possessive form for eponyms (Parkinson's disease, as opposed to Parkinson disease) is somewhat of a continuing debate. In the *AMA Manual of Style* there is no waffling—the

STACY L CHRISTIANSEN, MA, is Managing Editor, *JAMA*, and Chair, *AMA Manual of Style* committee.

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possessive is dropped. This policy was primarily spurred by the National Down Syndrome Society advocating the use of *Down syndrome*, rather than *Down's syndrome*, explaining that the syndrome does not actually belong to anyone.[2] The Council of Science Editors' *Scientific Style and Format*[3] also recommends the nonpossessive form for eponymous terms.

However, dictionaries are not of one mind on the matter: *Stedman's*[4] endorses the nonpossessive form and *Dorland's*[5] tends to as well, whereas *Webster's* dictionary[6] still lists terms primarily with the possessive form, noting "less commonly" that the nonpossessive form is also used.

In addition to the reason given above, another argument for preferring the nonpossessive form is that although eponyms are possessive nouns using proper names, they are structurally adjectival. Even when eponyms are used in an attributive sense, they usually lose their possessive endings over time (eg, Nobel Prize, petri dish).

Consistently using the nonpossessive form can also promote uniformity in the literature. Some agencies endorse the nonpossessive approach (e.g., WHO), albeit inconsistently. Uniformity in terms (e.g., in PubMed or other databases) enables reliable search results and easier indexing. Consistency is also important in training new clinicians and scholars as well as writers and editors in scientific fields, not to mention readers and patients.

Yet another reason to embrace the nonpossessive form is based on how terms are spoken. For example, it's clumsy to say Down's syndrome due to the duplicated *s* sound. Terms that typically include a definite or indefinite article don't work well as possessive either: the Fisher's exact test?

There are important exceptions, however: It's one thing to say "the patient lived with Parkinson's" and another thing entirely to say "the patient lived with Parkinson." Then again, using the full term *Parkinson disease* would prevent such dilemmas.

Another exception is that the possessive form is usually retained for terms that describe disorders characteristic of certain occupations, such as woolsorter's disease or pitcher's elbow. In those cases, the conditions indeed belong (or once belonged) to the individuals who bear the name.

Eponyms are not a cut-and-dried topic; as in all communication, the audience and context are key. Sometimes eponyms provide the drama or flavor desired: Is it a "major weakness" or an "Achilles heel"? Other times precision is required: not Bright's disease but glomerulonephritis. As communicators, we have the power, and responsibility, to use terms best suited to the message and the recipient.

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Gatherings of an Infovore*: COVID-19–Relevant News, WFH Suggestions, Management Tips, and a Few Lighter Posts

Barbara Meyers Ford

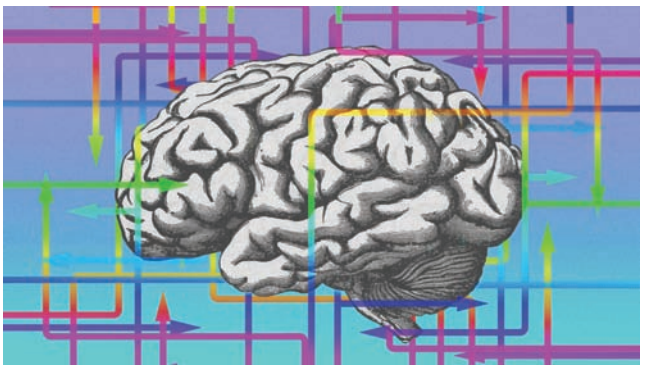
As we all know the world is coping with a health crisis of uncommon proportions. The coronavirus pandemic has forced many professionals into semi-isolation to stem the spread of the disease. We have all read more than our share of research articles and news reports filled with data, extrapolations, and forecasts for the U.S. and the world. Closer to home, professionals in publishing have made occasional telecommuting a daily work mode. And organizations in the information, library, and publishing communities have put forth their best efforts to alleviate some of the stresses the pandemic has put on the global communications system.

In this column I have gathered up a variety of resources focused on how to make the most of telecommuting from the perspectives of both staff and managers. My goal is to provide each *Science Editor* reader with at least one useful resource as we strive to continue publishing quality and timely information despite our current situation. Do let me know if you have found anything in your readings that can be shared with the SE community. You can send me an email at MCSone@verizon.net. Thanks!

Before getting to the work resourcesI want to share a few publishing and information related news posts:

A Parallel Pandemic: The Crush of COVID-19 Publications Tests the Capacity of Scientific Publishing
https://blogs.bmj.com/bmj/2020/05/26/a-parallel-pandemic-the-crush-of-covid-19-publications-tests-the-capacity-of-scientific-publishing/

OCLC's COVID-19 Page Brings Together Resources to Help Libraries Serve Their Communities During the Pandemic



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COVID-19: Response from the Information Community
https://www.niso.org/niso-io/2020/03/covid-19-response-information-community
NOTE: This news and resource page from NISO is updated frequently.

The Internet Archive Chooses Readers
https://scholarlykitchen.sspnet.org/2020/04/02/the-internet-archive-chooses-readers/?informz=1

Publishers Sue Internet Archive over Free e-Books
https://www.nytimes.com/2020/06/01/books/internet-archive-emergency-library-coronavirus.html

The newest acronym in our world is "WFH"(work from home). For some, this is nothing new; for others, it's a challenge which could be terrific or terrifying. Here is a collection of posts focused on how to make the best of the situation whether you're a seasoned pro or a newbie to WHF:

New Ways to Work in a Pandemic
https://www.annualreviews.org/shot-of-science/story/work-home-covid

*A person who indulges in and desires information gathering andinterpretation. The term was introduced in 2006 by neuroscientists Irving Biederman and Edward Vessel.

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A Guide to Managing Your (Newly) Remote Workers
https://hbr.org/2020/03/a-guide-to-managing-your-newly-remote-workers
What It Takes to Run a Great Virtual Meeting
https://hbr.org/2020/03/what-it-takes-to-run-a-great-virtual-meeting
NOTE: The *Harvard Business Review* is not Open Access; however, you can register to have access to two articles at a time for free. You can register again for another two if need be.

7 Tips for Maintaining Work-Life Balance During the COVID-19 Crisis
https://info.reprintsdesk.com/about/blog/7-tips-for-maintaining-work-life-balance-during-the-covid-19-crisis

Working From Home? 7 Smart Tips to Help You Get More Done
https://www.fastcompany.com/90476020/working-from-home-7-smart-tips-to-help-you-get-more-done

These 7 Exceptional Apps Will Optimize Your Work-From-Home Life
https://www.fastcompany.com/90492828/these-7-exceptional-apps-will-optimize-your-work-from-home-life

Are You and Your Partner or Spouse Both Working at Home? Here's How to Stay Sane
https://www.inc.com/minda-zetlin/working-at-home-remote-work-partner-spouse-ground-rules-boundaries.html

How to Do Thoughtful Work When You Just Can't Focus
https://www.fastcompany.com/90512770/how-to-do-thoughtful-work-when-you-just-cant-focus

Infographic—COVID-19: The State of Home & Work-Life Balance
http://www.dailyinfographic.com/wp-content/uploads/2020/04/COVID19-Infographic.png

Need a break? Several organizations have put together virtual tours to help you relax and regroup. There are other interesting diversions online as well. Here's just a sampling:

12 World-Class Museums You Can Visit Online
https://www.mentalfloss.com/article/75809/12-world-class-museums-you-can-visit-online

9 Classic Board Games You Can Play Online
https://www.mentalfloss.com/article/621061/classic-board-games-to-play-online

Here Are the Funniest Memes About Working from Home During the Coronavirus Outbreak
https://www.fastcompany.com/90476005/here-are-the-funniest-memes-about-working-from-home-during-the-coronavirus-breakout

Stuck at Home Because of Coronavirus? How to Get Your Art and Design Fix from Your Couch
https://www.fastcompany.com/90475447/stuck-at-home-because-of-coronavirus-how-to-get-your-art-and-design-fix-from-your-couch

15 Ways to Fight Boredom and Anxiety Amidst the Coronavirus Pandemic
https://www.forbes.com/sites/heathermorgan/2020/03/17/15-ways-to-fight-boredom-and-anxiety-amidst-the-coronavirus-pandemic/#4b9fb5be15ef

5 People Who Were Amazingly Productive in Quarantine
https://www.mentalfloss.com/article/620764/productive-people-in-quarantine

Inspirational TV Shows to Watch During this Pandemic
https://blog.oup.com/2020/04/inspirational-tv-shows-to-watch-during-this-pandemic

Finally, the website CALM has a page of free resources you might like to dip into so that we can …

Look After Ourselves, and Each Other
https://www.calm.com/blog/take-a-deep-breath

There are about 34,550 active scholarly peer-reviewed journals, collectively publishing about 2.5 million articles a year.

(The STM Report, Fourth Edition)

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