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COMMENTARY

Science communication: Eight perils, but one pearl to make it all worth it

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Rogelberg et al.'s (2022) focal article makes a strong and effective plea for industrial-organizational (I-O) researchers to do more in the realm of science communication—that is, communicating I-O science to a public audience. Topics such as work–life balance, telework, virtual teams, and employment law have become even more important to the public audience, thanks to the changing nature of work through the pandemic (Contreras et al., 2020; Kossek & Lee, 2020; Trougakos et al., 2020). The time is ripe for I-O researchers to engage in science communication to provide some research-driven and data-driven answers to the widespread questions asked by employers and employees across the world. At the same time, there are prominent challenges and dangers associated with bringing our science to the public limelight. As a current I-O doctoral student who regularly engages in science communication, I have experienced firsthand a number of these challenges and dangers, many of which were discussed in the focal article. I explore them below as "eight perils" of science communication, but I conclude with one important "pearl"—that is, one overarching value of science communication—that makes it all worth it.

Peril #1: The writing style is different

As the focal article describes, one of the primary ways to engage in science communication is to write for public outlets (e.g., op-eds, magazines, newspapers). After having written and published over a dozen op-eds in public outlets like *Fast Magazine*, it has become clear to me that the required writing style is dramatically different from that for academic writing. Academic writing uses long sentences, strings of prepositional phrases, careful qualifiers (e.g., "the evidence suggests that, in certain contexts, . . . "), and sometimes more in-text citations than actual content. Popular press writing, on the other hand, emphasizes short and concise sentences, evocative language, analogies and real-life examples instead of statistical results, and "Tweetable" phrases (see Learning Agency, 2019). One of the first hurdles I had to clear when submitting pieces for public outlets was the stigma that academics have among popular press editors. I have even been told by several editors that they are hesitant to take submissions from academics due to generally poor writing fit.

Peril #2: The audience is different

As someone who specializes in research methods and statistics, one of the biggest challenges I face is in communicating some of the complex analyses found in our research to a nonstatistical audience. Even among academics, basic principles such as p values are often misunderstood (Lakens, 2017, 2021). For example, Cassidy et al., 2019) found that 89% of introduction to psychology textbooks incorrectly explained statistical significance. If our fellow academics are

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struggling to accurately describe statistical concepts, and if most of the public who might take no more than an introductory statistics class (if even that) are not leaving with an accurate understanding of basic statistics, then the plethora of advanced methods described in I-O research articles (see Murphy, 2021) is bound to be misunderstood by the average public audience member. It is not enough to know how to run advanced analysis methods; you also must know how to explain it to a broader audience. Try explaining a restricted variance interaction effect to someone who has never taken a statistics class, in one paragraph or less. It is much harder than it sounds!

Peril #3: 800 words or less

Most op-eds are 800 words or less, and many public press outlets have a word limit of around that amount. After writing journal articles somewhere between 8,000 and 15,000 words, trying to summarize an important research topic in less than 10% of the space is nearly impossible. Often, popular press editors tell me to cut down on my submissions and remove what I consider to be important context or background information. There is simply no space in most public-facing articles to include a literature review, details on your methods, and an explanation of limitations. Readers want to know the main argument right away and the takeaway message about what they can do, or change, thanks to your research.

Peril #4: All op-eds are wrong

All studies have limitations, and all effects have boundary conditions. Even the best research study is most likely only helpful or applicable to a particular group of people, in a particular context, or for a particular purpose. There is no space or time in a short public-facing article to articulate all these limitations. In that sense, all op-eds are wrong because you are bound to make general statements or conclusions that are not necessarily true in all circumstances. It is an extremely difficult, and in some ways, ethically ambiguous process of determining what qualifiers and limitations to include in an op-ed and what must be left out. I must constantly remind myself that op-eds are, by definition, *opinions*. They should be based in evidence and research, but they are ultimately my own opinions. They may not be correct, and after further examination by myself and others, I may change my mind. Writing an op-ed is risky because it means putting out an opinion that is very likely to be wrong in at least one way, as opposed to writing an academic journal piece that, after peer-review, is ideally as airtight as possible.

Peril #5: You will be criticized (or attacked)

By putting out a public opinion in writing or in speaking, you are inviting criticism via extremely public channels. There are usually no public comments sections in academic journals, unlike the highly active and engaged Twitter or Facebook threads. Unfortunately, many of these threads will be dominated by trolls (as the focal articled noted), and even nontroll readers tend to be harsher in online public criticisms (Kruse et al., 2018; Mendu et al., 2020). I had a particularly difficult experience where I published a public piece in a widely read business magazine criticizing the use of popular personality tests (e.g., Myers-Briggs, use of traditional Likert-type scales, lack of consideration for within-person personality variance). One scholar in our field took issue with my arguments and, instead of contacting me directly with feedback, they posted on social media criticizing my piece and emailed the editor of the magazine directly. Thankfully, the editor contacted me directly, and I was able to explain and justify my reasoning, and I made changes in response to some of the scholar's valid critiques. Due to the lack of space and the need to simplify arguments for the sake of a public audience, you will likely make mistakes like this when writing

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for the public—and such mistakes will likely breed criticisms or even attacks in response. If you are going to engage in science communication, you need a really thick skin!

Peril #6: You will not be rewarded

As the focal article noted, there is no formal reward or incentive structure for engaging in science communication. For academics, the bottom line of tenure and promotion at most research universities are peer-reviewed publications, then teaching, then service. This is particularly challenging for graduate students and early career scholars, whose academic livelihoods might even depend on citation counts and h-indices. In fact, there is no formal system for tracking citations or reads of an op-ed that is comparable to the h-index or citation count for academics. Graduate students and early career scholars who want to engage in science communication must not only meet the expectations for number of peer-reviewed publications but also write just as prolifically (if not more so) for public outlets in their limited spare time.

Peril #7: Yhinking like an entrepreneur

Science communication requires that you think like an entrepreneur, which is not exactly something for which academics are well known. Horwitz (2021) describes in *Inside Higher Ed* how academics should think like an entrepreneur in terms of finding what research to focus on ("market analysis"), assessing the risk–reward ratio of your research, and securing "customers" (i.e., citations) for your "product" (i.e., your article). I recently expanded on her ideas to suggest that academia trains students to work slowly and methodically on complex research projects, with little to no emphasis placed on training students to advertise their work, network with other professionals in the industry, and sell their ideas to a wider audience (Zhou, 2021). Yet, to engage in science communication, we need to do just that: work swiftly and respond immediately to current events, network with editors to get your pitches noticed, and promote and market your articles to attract more readers. This requires a different set of skills and competencies. Look at the O*NET's job analysis for a psychology professor (25-1066.00) and compare it with writers (27-3043.00) or journalists (27-3023.00). Their work activities, skills, and interests are quite different.

Peril #8: You are (mostly) on your own

There are not a lot of I-O scientists who are actively engaging in science communication, and probably even fewer who are early in their careers or graduate students. Perhaps with the focal article, more will arise, but currently, it is honestly quite a lonely journey. I have many amazing mentors and friends in academia who focus all their time on research and many in applied practice who focus all their time on actual day to day management and work. Few focus on bridging the gap, perhaps because it requires double the work to be a premier researcher and a premier practitioner in order to be respected and valued by both. Moreover, most op-ed writing requires solo authors, unlike the long author lists commonly found in academic research. This is where starting early, as a graduate student or early career scholar, is incredibly important to being able to build extensive experience in both research and translating research into practice and to network with like-minded scholars willing to work together to bridge this academic–practitioner gap.

One pearl to make it all worth it

I hope at this point that I have adequately demonstrated that science communication is difficult, perhaps even dangerous. You must use a different writing style for a different audience, write

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concisely with the understanding that you must oversimplify and omit seemingly important details, be ready for critiques and even attacks, potentially forgo important academic rewards such as more citations and publications, practice different skills such as public speaking and marketing, and pursue this all with limited formal support networks. It is not for the faint of heart, and it is not an easy side gig that is supplemental to the main research work of an academic.

But here is the pearl that makes it all worth it: the purpose of research is for it to be shared and communicated in a way that makes a real impression on others. Without science communication, research goes into a paywalled academic journal that few will read beyond a handful of faculty and students. Without science communication, research is only for the sake of research rather than for the sake of improving the lives of others. Without science communication, the challenges faced by employers and employees around the world will never engage with the potential solutions being developed and tested in rigorous, high-quality research labs and experiments. Perhaps this is idealistic of me, but I would like to believe that those of us in academia are here because we believe that our science is valuable to society and worth pursuing. If that is true, then failing to engage in science communication is to fail the *telos*—the inherent end goal and purpose—of academic research.

Need help getting started? The focal article lists several great recommendations, but I would add a few more specific suggestions. For example, try writing for your local school newspaper. Most have an opinion section that accepts contributions from fellow students, and you will hopefully get some good feedback from editors—I got my start in writing for George Mason University's *Fourth Estate*. Start submitting pitches to news outlets; most have an email to which you can send unsolicited pitches. Just like with academic journals, the rejection (or nonresponse) rate is very high, but eventually one will be accepted. There are even some organizations, though not many, who help train students and young academics in science communication, and there are opportunities to network with like-minded individuals in such spaces. For example, I am a contributor with Young Voices (www.young-voices.com), which has been instrumental in helping me hone my public writing skills and serving as a PR firm to help pitch my articles to public outlets and media.

With any luck, the field of I-O psychology and academia as a whole will slowly gravitate toward more acceptance of and value placed on science communication. We live in an age of rampant misinformation, miscommunication, and misunderstandings. It is about time that we as academics live up to what we are supposed to be: experts at conducting rigorous research to address important real-life challenges then communicating our findings to help others solve the problems we purport to study in our research.

Conflicts of interest. We have no conflicts of interest to disclose.

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