Reviewers rule: Strategies for faculty advancement

As you progress in your academic science career, it is vital to know how to not only write papers and grant proposals, but how to review them as well. Ensuring you develop skills in reviewing the currency of academia will provide both tangible and intangible professional benefits. By Alaina G. Levine

At the Fred Hutchinson Cancer Research Center (The Hutch) in Seattle, Washington, the Office of Scientific Career Development does a little extra in assisting postdocs and graduate students with their career planning. Karen Peterson directs this enterprise, and tucked into her repertoire of advice and resources for finding a job, landing a fellowship, and honing core competencies required of successful scientists, is a crucial opportunity: the chance to develop prowess in reviewing grant proposals.

The review process, and all of the critical thinking, analysis, organizational, and communications skills that are sharpened while pursuing it, is an essential element of academic science. And yet, while protégés are often taught how to write papers and proposals early in their careers, they usually have to figure out the reviewing part on their own. If they are fortunate, their advisors provide guidance.

But counselors like Peterson are looking to change that, by offering advice on how to review papers and grant proposals and how to effectively serve on grant panels and study sections. It’s a good thing, too, considering that the capabilities developed from conducting reviews are what scientists need to advance in their academic careers. “Our currency is writing manuscripts and grants—that is what is most highly valued in academia,” she says, “so it’s incredibly important for your professional development and training as a scientist if you want to stay in academia.”

When you review others’ work, you gain insight into the cutting-edge issues of the field, as well as the skills needed to produce your own winning outputs. As Peterson puts it, “As a junior faculty, if you’re lucky to get on a study section, it can take you to another level in your career and help you be more successful in your own grant writing. It’s the best way to learn how to write grants.”

Opt for the opportunities

Young investigators looking to boost their CVs may not realize it, but review opportunities are hidden around many corners. The best place to start is with your own principal investigator (PI). “Professors get asked to review papers all the time,” says Takashi (“TK”) D. Y. Kozai, assistant professor of bioengineering at the University of Pittsburgh in Pennsylvania. “If you let them know you are interested, they are often willing to refer you when they decline.”

But there is more to leverage besides your advisor’s pass-alongs. It is common practice in academia for scholars who are asked to review papers to share the task with their charges. This is referred to as an “undisclosed review,” says Tracy L. Kijewski-Correa, Leo E. and Patti Ruth Linbeck Collegiate Chair and associate professor in the Department of Civil and Environmental Engineering and Earth Sciences at the University of Notre Dame. As a graduate student, her PI gave her the chance to earn her chops at reviewing by engaging in such a scenario. “The advisor accepted the review and fed it to me, and I conducted the review. He looked it over, massaged it, and we worked together to finalize it.”

As long as you are discrete, you can assist your PI in reviewing the papers they are given to review, as Rubina Kotak attests. A reader (essentially an associate professor) in astrophysics at Queen’s University Belfast in Northern Ireland, Kotak is also an associate editor for the journal Astronomy & Astrophysics. When she sends out papers for review, she has no problem if the advisor shares the responsibility with their protégé. She even suggests that early career investigators ask for these opportunities. “As an editor, I wouldn’t mind this,” says Kotak. “You can discuss the paper with colleagues as long as you maintain complete confidentiality.”

Adriana S. Bankston, a postdoctoral research associate in the Department of Anatomical Sciences and Neurobiology at the University of Louisville School of Medicine in Kentucky, appreciates that her postdoc mentor invited her to assist with paper reviews. “We both read the paper independently and wrote our own critiques. We then came together and discussed them, and he submitted a response to the journal containing parts of both our responses,” she says. “From this experience, I learned what kinds of things to pick out in terms of writing a good paper review.”

While divvying out paper reviews is fairly routine, doing so with proposal reviews is quite another story—this is a definite no-no. In fact, scientists who are given grant

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—Kanwal Singh

Proposals to scrutinize are under strict dictate not to reveal the content of the proposals or share the load of reviewing them. While this can be disheartening for early career academics who wish to gain experience in proposal reviewing, there are other ways to learn and hone this craft. At The Hutch, Peterson leads a training module that consists of U.S. National Institutes of Health Career Development (K)-Award proposal-writing basics, a mock study section where trainees can learn by critiquing proposals, and an opportunity to look at examples of successful K-award proposals. Participants also get to hear firsthand from faculty who have sat on K-award study sections and reviewed many K-award proposals. This type of hands-on training is invaluable in building an academic career, she notes.

As a graduate student, Bankston participated in a grant-writing course that included a chance to review grant proposals in a simulated study section. “Overall, this was a great opportunity to learn about this process as part of a graduate course before going out into the real world to review grants as PIs do on actual study sections,” she says.

Ask the gatekeepers

Good talent is hard to find, as are good reviewers. So it is not surprising that when you begin to build your academic brand and become known for being a good reviewer, you become sought after and can get asked to review—a lot.

Editors and granting agency program officers are always looking for new reviewers—they need fresh perspectives to provide high-quality reviews. Thus, early career scholars shouldn't feel hesitant to reach out to editors and ask about the opportunity or even suggest themselves as a reviewer, says Kijewski-Correa. After reviewing over 100 grant proposals and 5–10 journal articles per year for the last 12 years as a faculty member, she joined the editorial board of the Journal of Structural Engineering. “As an associate editor, I see that young faculty are emailing their expertise to editorial boards to ask about future review opportunities,” she notes. “I welcome this kind of input. Editorial boards are overwhelmed. Getting someone who wants to do a quality review is getting increasingly hard, so if I know someone who will do that, I am glad. I would balance the less–experienced reviewers with those who are more experienced.”

Reviewers are especially coveted in emerging and interdisciplinary fields. “If you have expertise in a specific area of science, particularly something new that nobody’s done, you might be able to get in sooner,” says Carmen R. Cid, dean of the School of Arts and Sciences at Eastern Connecticut State University in Willimantic.

Scrub the skills

When you review someone else’s work, you grow your abilities in numerous areas that are strategically critical for would-be faculty leaders. First and foremost, as Bankston notes, “it teaches you to be a better writer and more critical about your own results.”

Scott Franklin, a professor of physics and astronomy and director of the Center for Advancing STEM Teaching, Learning and Evaluation at Rochester Institute of Technology in New York, shares how much he has improved as a communicator by paying attention to seemingly inconsequential organizational, formatting, and design decisions in grant proposals and papers. From how much space the authors devote to background information and literature reviews, to their use of bullet points to describe their goals, these methods of presenting information “leave an impression on you,” says Franklin. “You are seeing tricks, like a figure presented in a way you never saw before. It could be something small like putting the figure on the side and wrapping the text around it. But these are soft skills that you pick up and can apply when appropriate.”

Reviewing grant proposals enables you to “learn how to get to the point quickly,” says Peterson. “You realize that some proposals are read after 20 hours of no sleep, sucking back the coffee, and sitting on an airplane,” she says with a quick laugh. In this environment, “you learn what makes the best proposal.”

In addition to the external conditions that can impact reviews, the reviewers themselves don’t necessarily have the same background and deep knowledge of a subfield as the authors, and yet all they have to evaluate the work on is what’s written on the page. “Something that’s really obvious to you because you’ve been looking at it for weeks on end may not be clear to others,” says Kotak. So you have to ensure that anyone with a general education in your major field of study can grasp the importance of the concepts you are putting forward.

Kanwal Singh, dean of Sarah Lawrence College in Bronxville, New York, has served on review panels and offers another skill that is gained in the review process. “You learn to work like a jury to come to consensus,” she says. “You have to function within constraints—it isn’t realistic to recommend everything you think is good for support, so you have to be really meticulous about making decisions.”

There’s also the matter of acquiring a code of ethics as a scientist, yet another “skill set” that can be developed by conducting reviews. Early in her career, Bankston already recognizes “the great responsibility that scientists have to produce fair, constructive paper reviews.” Given the gravity of the reviewer’s position, “if I don’t do this ethically and objectively, I could kill someone’s career,” admits Kijewski-Correa. This forces scientists to think critically about how they...
judge others’ work. In Kijewski-Correa’s case, she purposefully developed a three-point rubric for all papers she reviews, which ensures that she remains consistent and impartial, and provides a clear mechanism to tell the authors what they can do better.

**Review the benefits**

Paper and proposal reviewing is challenging, time-consuming, detail-oriented work that is woven into both the research and service commitment of faculty. And yet, “you don’t get glory” from it, says Kijewski-Correa. “You get a few indirect benefits, but those indirect benefits are huge.” And it is the indirect gains that early career scientists should carefully consider as they pursue review opportunities.

One of the most important career advancement assets young scientists receive from the reviewing process is that “you’re getting a feel for your field and what’s going on,” says Kijewski-Correa. “There’s a lot of literature. Reviewing is a way of keeping you abreast. It keeps you fresh. You can’t help but be inspired by osmosis.” Indeed, “You get a sneak preview of what science people are doing way before the papers come out,” concurs Kotak.

Singh notes that “learning to be very rigorous about analyzing strengths and weaknesses in reviews helps you in all aspects of your career, whenever you need to weigh different paths.” Moreover, it allows you to “figure out when to take a chance on something that is a little riskier than something else, but where the potential payoffs may be much bigger.” Additionally, reviewing papers and grants throughout the years has “helped me mentor my junior colleagues,” she adds. “I can talk about the process with them, perhaps demystify it, and encourage them to get involved.” Adds Kotak: “You learn how to give good feedback, and that’s a skill you can use down the line for your own grad students and postdocs.”

One of the biggest benefits of serving on a panel is the face time gained with program officers (POs), says Franklin. “When you are on a panel, there’s downtime, and you get to talk to the POs and can run ideas by them,” he notes. “It’s an opportunity to sit down with a PO in person, instead of a phone call, and have a discussion that can extend over hours or days, not just a few short minutes. These conversations can be very valuable; they’ve definitely had an influence on how I frame grant proposals.”

Franklin estimates he has reviewed 40–50 grant proposals during his career, and shares that serving on panels has given him crucial insight into how to present quickly and to hook the audience, something he has applied to his own proposals. There are usually several proposals being reviewed by the panel, he notes, which consists of scientists with expertise in a variety of areas—and while the science in all proposals is sound, those that clearly communicate goals, objectives, and methods are the ones that grab the reader. “So we go around the room and discuss it,” Franklin explains. “Your proposal has to have a real hook that makes it stand out and be memorable to the reader … it has to jump off the page.”

The reviewing experience can have comprehensive career repercussions for faculty. “It has helped me in a broad, holistic way and provided me with some context,” adds Franklin. “For example, recognizing the funding landscape tends to make you accept rejection more calmly, whether it is a grant or in university life, like hearing ‘no’ from your department head or dean.”

**“Get your training wheels”**

As with any career-enhancing experience, it is always a good idea to get started early as a reviewer. Talk with your PI and see if you can embark on an undisclosed review. But even if your advisor can’t get you involved, there are usually other mechanisms on your campus to help you gain expertise in this process. For example, Bankston suggests offering to do paper reviews within the journal club in your department. And “you can always get your training wheels by reviewing scientific posters on campus,” says Kijewski-Correa. Offering to review and make suggestions for papers written by colleagues within your department is another way to acquire these skills.

Cid offers this valuable advice: Even as a graduate student, you may have the chance to organize a workshop on a technical topic of relevance to your community. When you do, “invite people to your workshop whom you want to review for. They could even give a talk, and that way you can get to know them,” she suggests.

No matter how they gain the experience, faculty who have engaged in reviewing emphasize that it has benefited their growth as scientists. “Most people are too narrow in their focus. There is often not enough incentive or encouragement to venture outside your particular area of expertise,” says Kotak. “So gaining breadth in scientific knowledge [from reviewing papers] makes someone a better scientist. You’re able to place your own research in a wider context.”

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