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Advice for Young Scientists on Fruitful Membership in the Scientific Community

By Emmanuel Boss

Off and on for the past 20 years I have been co-teaching an intense summer course in optical oceanography. During the course, graduate students and postdocs often take the opportunity to ask my colleagues and me questions about how they should comport themselves as part of a scientific community. During the most recent course, I spent a class period speaking to this issue. From the comments I received, the students clearly were appreciative, and I have since shared my notes with colleagues, many of whom found them useful and have added materials of their own.

Here, I convey some of the lessons we have learned through the years about strategies for navigating within the scientific community. They are by no means comprehensive, nor have they been investigated scientifically, but I hope readers will find them useful.

OUR BRAND IS OUR NAME

Basically, we want to have a reputation for doing good science, and we want people to use the science we produce (e.g., by citing our work). A respectable citation list is necessary for marketing ourselves when we are seeking a job or a promotion, or hope to join an expert committee—and also for feeling engaged in a meaningful endeavor. The associated concept in marketing is the *brand*. Our brand is our name.

It is self-evident that to enhance our brand it should be associated with quality work. It follows that we should be careful about what papers we lend our name to or the work we choose to accept (e.g., consulting for a dubious “scientific” company). It is hard to change one’s brand, as we operate in small communities that have long-term memories. It is therefore critical that we espouse a long-term view, one of delayed gratification, rather than

one of short-term gain (e.g., a paper in a high-impact journal with dubious data to help with tenure) that could compromise the longevity of our brand.

Other strategies to enhance your brand involve being kind to others, and sharing your ideas. While in rare cases somebody might run off with your idea and not give you credit, in which case you should be careful sharing with them in the future, it is more likely that it will result in a meaningful collaboration. For many, collaboration is one of the most joyful components of the scientific enterprise. Your reputation as a human being, not only for the science you produce, can also have significant consequences for your future (in particular, when job hunting). Sharing can also result in papers written by colleagues who undertake the work you don’t have time for. Never hesitate to contact your peers if you have constructive criticism to offer. They will appreciate the help. Also, don’t let people wait for your response to their queries. They will choose to work with those who respond.

Looking at science as a zero-sum game—thinking that a colleague’s success comes at our own expense—is myopic and counterproductive. The more diverse approaches included, the more likely our subfield will be able to provide useful solutions, benefiting us all. A collaborative approach also helps us to better make the case for the importance of our subfield in order to increase resources and attract young talent to it.

Marketing is also about communicating your brand and its products. Doing great work that is not shared is like inventing a great product that nobody knows about. The product of your science should be easily available. The more clicks it takes to obtain the PDF of your article, the less likely it is to be read (and hence

cited). If your paper is only available from the publisher’s site, and additionally with a fee, the likelihood it will be read by a scientist at a poor university with no library access is slim. On the other hand, if it comes up in a simple search on the topic with a link to a PDF, it is much more likely to be read, and if relevant, cited. Sending your papers to experts who you think will appreciate it is perfectly OK and will save you the grief of seeing their publication on a subject you have been sweating on that does not cite your work (it is also OK to send it to them after the fact to ensure they are aware of your work). Working on topics of wide interest, while resulting in more competition, is also more rewarding. It will increase the number of people your work touches.

If you are interested in being invited to join expert committees and possibly be approached about jobs, you should have an up-to-date and comprehensive personal website. Whether you should post your PDF on your non-commercial website is a matter of debate. I buy my publication rights whenever I am first author. If a publisher should ever ask me to remove a PDF, I will reconsider reviewing for this publisher (an essential work we do for free).

MANAGING YOUR TIME AND STRESS LEVEL

A science career is not for everyone. Given the many privileges that may be associated with it (e.g., flexibility in hours, travel, salary, status, job security for some), it is not possible to succeed without working hard, often way beyond a “normal” work-week. It is therefore very important to learn to manage time well and find strategies to ensure you have time for yourself to avoid burnout. As participants in a creative line of work, our egos are often on

the line, exhibited by our latest new ideas and discoveries, which makes us vulnerable to mental breakdowns. Achieving a “balanced” life is a constant struggle for my colleagues and me. On the other hand, the work can be so joyful and rewarding (in particular, learning new things daily on a subject you are passionate about), it is hard to imagine ever doing anything else—I told my kids once that they have the misfortune to have a dad who loves his work. You will need to eventually learn to say “no” to requests to share your expertise. It is better for your reputation to “dance in a few weddings,” as my mother advised me, than to limp in many. Joy and fun *can* and *should* be synonymous with doing science. They are our major compensation for the long hours and the associated chores (reviews, committee work, data processing, etc.). Remember to take breaks, play, and clear your mind. The best ideas may not appear while you stare at a computer screen all day.

CREATE A WORK ENVIRONMENT THAT SUITS YOU

Avoid thinking of your scientific community as a “system” or an “organized machine” that has vision and that you have to fit into or fight with. What you may perceive as a system is in fact a complex network of individuals, each with their own interests and culture, that is unlikely to have you as a focus of interest. Try to construct an environment that suits you, and work with your colleagues to transform the system you perceive to one that you prefer. As much as possible, give your colleagues the benefit of the doubt. If a colleague does something you don’t agree with, consider that they are coming from a different place than you. Ask questions, and try to determine their context before judging.

PEER REVIEW IS A COLLABORATION

Should you reveal yourself in a review? One of the best pieces of advice I ever got as a young scientist (from Marlon Lewis) is that the relationship between

reviewer and writer should be collaborative and *not* confrontational. Your reviewer is the last person to see your work before it goes public. With the plethora of journals available today, a reviewer can never “protect” the community from bad papers. Working collaboratively to make a paper the best it can be, rather than fighting each suggestion for improvement, will likely result in a much better paper; remember that the reviewer likely sees the paper with fresh, less-biased eyes than the writer. I always sign my reviews. It forces me to do a good job because I cannot hide behind anonymity, and it provides an avenue for direct communication with the writers in case they need clarification, thus accelerating and facilitating the exchange of information. If writers choose a non-collaborative route, I will likely not review for them in the future (soon you will find yourself saying “no” more often than “yes” to review requests). The reviewer’s point of view also allows you to see the degree of sloppiness in submitted work. Do your utmost to appear professional, as a sloppy paper full of typos conveys that you may be sloppy in your analysis, too, tarnishing your brand in the eyes of a colleague.

Apropos scholarly publication, I remember another piece of advice I got as a young scientist, this from George Veronis. When you choose a journal in which to publish your research, you are casting a vote. Publishing with a not-for-profit scientific society journal ensures profits (if any) benefit our community. It also typically ensures access to the best reviewers, the experts in the field who are currently working on this subject.

A FEW MORE TIPS

Be frugal with grant funds (but remember not to be pennywise and pound foolish). If you cannot mentally explain your expenditure to your neighbor, you probably shouldn’t do it.

Finally, follow your heart: when you do what you love, you will spend much time doing it. You will learn to do it well and you will be happy. People are attracted

to happy people. When you do what you love, you will not regret the things that don’t work out.

ADDITIONAL ADVICE

Peter Franks, a professor at Scripps Institution of Oceanography, reviewed this article, and shared his advice, based on his own personality and experiences. His points are pertinent to the subject and provide a different, but complementary point of view.

1. Be a good person. You never know how people you interact with might become important to you later in life. Treat everyone with respect, and be open to learning from them.
2. Learn to write well. This will facilitate every aspect of your science.
3. Figure out what you want your legacy to be. For me, it’s the people (especially the students) with whom I interact. For others, it will be their scientific papers. Use this to help focus your energies and your limited time.
4. Recognize that life has ups and downs: we all lose our mojo at some point(s). This is normal, and you will get through it. Persist, and each day when you wake up, have a plan for one thing that will contribute to a paper.
5. Be a mentor and teacher. You learn a lot about yourself and the world by helping other people learn about themselves and the world. ☑

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