Rewarding Collaboration

This is the season when many assistant professors in the U.S. are subjected to the vagaries of their universities’ promotion and tenure process. A common piece of advice that is given to job candidates and newly hired assistant professors is that it is important to work independently of other faculty so that one’s accomplishments can be measured easily without the complication caused by involving more established scientists, making the evaluation of individual contributions difficult. However, from the modern perspective that faculty scientists should do the best possible, cutting-edge science, this is arguably the worst possible advice a new faculty member could be given.

Collaboration is fundamentally important in 21st century biology. “We are all biologists now” is a widely mentioned, but oft forgotten phrase when tenure decisions come around. This statement simply means that limiting one’s work to merely a subdiscipline is out of date. Plant scientists can no longer simply be molecular biologists, biochemists, cell biologists, ecologists, or geneticists. If we are to understand plants at the level of dynamic living systems shaped by evolution in the rich context of their interrelationships with other organisms, then we have to embrace all of these disciplines plus more, stretching to even more diverse fields, such as mathematics, physics, the computer and information sciences, and engineering. No longer can any of us isolate ourselves; rather, we must all embrace multidisciplinary biology as a core principle.

The promotion and tenure process should require both the candidate and the committee to explicitly identify and evaluate individual contributions. It should be the duty and responsibility of all promotion and tenure committees to assess and recognize the nature and extent of collaborations and of individual contributions to collaborative research. In today’s world, clear evidence of significant contribution to successful and substantive collaboration should be expected of almost any candidate for promotion and tenure in the biological sciences; never should a candidate be penalized for engaging in collaborative work. In short, collaboration should be expected, not discouraged!

It is often claimed that it is difficult to determine who did what when junior faculty collaborate with senior faculty. This is nothing more than an abdication of responsibility: any promotion and tenure committee should be able to assess a candidate’s accomplishments within the context of collaborative research, as is done all the time in fields such as physics, astronomy, and the computer and information sciences. There is no good excuse for not doing the same in biology. In point of fact, quite a few universities have already figured out a process to do this well in the biological sciences, and good, useful examples are available. Collaboration is the lifeblood of modern biology, and any biologist who doesn’t understand this should not be asked to serve on a promotion and tenure committee.

Once one accepts the multidisciplinary nature of 21st century biology, it is just a short step to realizing that actually “we are all scientists now” and that the only way to solve the major questions of the day is to work together. Biologists can no longer operate independently of computer and information scientists, mathematicians, statisticians, and physicists. It is essential that we all work together as scientists to understand the physical and biological world in which we live. The only way this is going to work is by encouraging and rewarding collaboration, especially in our younger colleagues.

The future of humankind requires that we collectively adopt the broadest possible perspective and act accordingly to decipher and understand the world in which we are privileged to live. Only in this way we will be able to successfully address the major challenges we face as climates change and ecosystems adapt, with us or without us.

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