Dissertations and Books in Science and Engineering Fields: An Editor's Perspective

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Abstract

This paper argues for a better alignment between published scholarly output and the interest of the public in science, quantitative social science, and engineering research.

Context

As publishers of peer-reviewed, monographic scholarship, university presses play a distinct role in the larger landscape of scholarly communication and occupy a unique (if small) niche in the publishing world. Their mission is to develop and disseminate authoritative scholarship that has been evaluated for quality and selected for its contribution to existing knowledge in specific fields. University presses offer authors a range of services including peer review, editorial development, copy-editing, design, print production, digital production in multiple formats, sales distribution, publicity, and marketing. Many presses receive little or no direct funding from their parent institutions, though most receive valuable in-kind support.

University presses have traditionally found it possible to fund their publishing activities through the sale of books, journals subscriptions (if they have active journals programs), and subsidiary rights. A number of trends have converged to make this more difficult than in the past. One is a well-documented, dramatic, and devastating 30-year decline in monograph purchases by academic libraries. A second is the loss, over roughly the same period, of the most profitable university press journals to commercial academic publishers. A third and less remarked development is the large output of books in humanities fields. This, combined with the abundant information and entertainment options now available to those with disposable time and income, ensures that humanities scholarship competes for attention in an increasingly saturated marketplace of ideas.

As a result of these developments, presses depend heavily on a consumer marketplace to fund their publishing activity, and they do so at a moment when serious nonfiction is hard to sell to scholars, students, and general readers. It follows that acquisitions editors at university presses spend time and energy seeking commercially viable work to offset the costs of their core (mission-related) activities, which include the development of monographs by junior scholars. Since *all* publishers, including trade publishers, seek profitable projects, it should come as no surprise that competition for broadly appealing and accessible manuscripts is fierce. These works might be entirely out of reach for university press editors, who are constrained by rigorous and protracted review and approval processes and by limited funds for royalty advances. Editors have grown used to seeing their most successful authors signed up by literary agents, who auction the next (typically still unwritten) book to trade publishers for outsized sums. By far the most lavish offers go to scientists willing and able to write accessibly about their own research.

Supply and demand in the two cultures

Although 75% of doctorates in the United States are awarded in science and engineering (S&E) fields, their associated dissertations almost never see publication in book form. The high level of specialization required to read these works, and the narrowness of the questions they investigate, would seem to explain why S&E dissertations are so rarely revised for wider, book reading audiences. The explanation falters, though, when we consider that humanities dissertations also engage focused questions and demonstrate high levels of specialization. Despite this, some humanities dissertations do see revision and eventual publication in book form.

A more likely reason for this scenario has to do with the nature of knowledge creation in science. The advancement of science requires the rapid dissemination of current research in a form that can be readily accessed, assimilated, and built upon. Accordingly, doctoral work seeking to impact S&E fields should be vetted and published quickly, with its associated data, and without the need to command an audience beyond specialists. With its length, breadth, and longer time to publication, the book is not the vehicle to drive discovery in science—even if, as I would argue, it remains a major vehicle for informing and educating a wider public about science. Recognizing this, the movement in some S&E fields to accept peer-reviewed, multiply-authored journal articles in place of longer, monographic dissertations is a welcome development that aligns with the reality of discovery in fast moving S&E fields.

For post-doctoral researchers in these fields, few incentives exist to invest time in writing books or revising dissertations. Strong disincentives deter junior faculty members, whose energies must be directed to teaching, research, fundraising, and publishing in peer-reviewed journals. Books that do see publication in S&E fields are likely to be produced by researchers working from the safe side of a tenure line; but in the absence of other incentives, even senior faculty members may find it difficult to set aside other commitments in order to write books. Even those with extensive research careers on which to draw often do not find the time to write about their work until retiring from active research and teaching.

The manuscripts our editors do have the chance to consider and publish in S&E fields tend to be worthy ones that, with review and editorial development, result in influential books. Their authors have made the time to write at length, not because of any expectation or requirement to do so, but because they have something significant to say in this format and to a wider public; or because they are effective teachers who have gathered their pedagogy into what could become a widely adopted text. Those too are influential and valuable books, written to support other teachers and instruct students beyond the author's own campus and classroom.

The demand for trade books and textbooks in science fields — suggested by the lavish offers they command from commercial publishers — also suggests they are worth encouraging. The public's need for translational works about science is now partly met by science journalists, who fill a gap left by scientists themselves. The work of talented science writers is essential in such an environment. It too commands high prices from

magazine and book publishers. I believe it can complement — but cannot replace — the work of researchers with deep expertise in their fields.

Feast and famine

The different credentialing systems in science and humanities fields has produced imbalances in the public's perception of and access to research and scholarship in these fields.

MIT Press acquisitions editors in humanities and qualitative social science fields face what appears to be an entirely different set of challenges from those confronted by their colleagues acquiring in science and quantitative social science fields. For humanities editors, each day brings new projects to consider. The e-mail in-boxes of these editors overflow with proposals, including many by first-time authors seeking publication. Even though most US university presses have strong humanities programs and emphases, competition for these projects is much less intense than for projects in the sciences.

The task of humanities editors is to sift and evaluate this enormous influx of material using external peer review and their own experience and knowledge of which projects stand to impact their fields. These editors are also on the lookout for commercially viable works by highly regarded senior scholars and public intellectuals with existing platforms, but much of what they sign up is not commercially successful or even economically viable. This mission-critical work will not recover its publication costs through sales. It will, however, go on to earn citations and review coverage. It is very likely to win awards and other recognition. It will impact its fields.

A proposal

That the old divide between the sciences and humanities persists in their credentialing systems should be a cause for concern. It is reasonable to wonder whether this contributes to the devaluing of the humanities at a moment when they are badly needed—when social and environmental problems demand the expertise of humanists and productive collaborations across disciplinary divides. Intractable problems also call for a scientifically informed public. The public may not be well served by system that emphasizes research over teaching and publication in journals at the expense of other forms of public engagement — including the publication of books for non-specialist audiences.

One way to begin to address this imbalance is to create more incentives for scientists, engineers, and quantitative social scientists to write books, or at least to begin thinking about doing so earlier in their careers. Why not ask doctoral candidates to prepare a book prospectus that would translate the key findings of dissertation related research for a wider readership? University press editors could be asked to evaluate such proposals and offer advice. This will not solve the current scholarly publishing crisis, but it would encourage young scientists and engineers to begin thinking about the public interest in their work and making the valuable connections needed to publish that work at some

point in the future. As a reminder of the public's interest in science and engineering, the exercise of writing a book proposal would also align with efforts to encourage ethical practices in those fields.

Questions to consider

• What costs are associated with a publish-or-perish system in the sciences?
• Should scientists be rewarded for efforts other than the kind of headline-grabbing research that top ranked journals will publish?
• How can doctoral students and post-doctoral researchers in science fields support the important work of testing the results of prior research? The current reproducibility crisis suggests the public might benefit if scientists were recognized and rewarded for efforts to reproduce the results of others—as well as for pushing the frontiers with the sort of original research that can be published in high-impact journals.

References

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