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Y. Rachel Nam

Marginalised ideas are key to scientific progress

Young scientists are deterred from conducting pivotal science on topics essential to societal progress by the pressure to publish in high-tier journals that neglect and marginalise these issues, argue Marginalia Science, a group dedicated to further scientific diversity.

The best-loved books and papers that transform our scientific thinking are not pristine and unmarked. They're alive with questions, arguments and remarks — replete with marginalia. Often, it is from these notes in the margins that powerful, transformative ideas emerge — the seeds for new research projects that will push the boundaries of our scientific thinking. Likewise, progress at the societal level entails an ongoing process of disparate, often marginalised groups — who may not share the same interests — negotiating space and priorities in public discourse. Science is, of course, part of society, and it also relies on dialogue and diverse views for progress. However, the 'publish or perish' model in science marginalises divergent, non-mainstream ideas, particularly from emerging scientists.

Our science is advanced and invigorated by the work of young scholars, many of whom work on topics outside of the mainstream. It is time that such interests, ideas and research are integrated into the scientific community. Abortion, gender-based violence, sex work, access to HIV-preventative pre-exposure prophylactics (PrEP), transgender identity, masculinity, microaggressions, indigenous rights, white supremacy, migration and political violence are just some examples of issues that behavioural scientists (e.g., psychologists and political scientists — the authors' fields of study) consider marginal. Yet these are the very topics that should warrant funding by our most generously endowed institutions, rigorous engagement in the spotlight at our largest conferences and, perhaps most importantly, peer-review and publication in our flagship 'basic science' journals. Indeed, many of these issues are exactly the ones we see play out, not only in the news, but also in the social, economic and political events that affect our lives. Keeping these topics at the scientific margins is strikingly at odds with the potential public impact such work could have.

It is not that these topics receive zero funding or never reach the pages of a

journal. Rather, in hushed tones and repeated anonymous reviews, they are all too often funnelled to specialty journals. This puts an immediate ceiling on their potential impact, and the pursuit of such topics poses a potential career risk for PhD students. By contrast, cues to prioritise mainstream topics and trendy methods surround young researchers, in professional advice about what will 'get you a job'; in perusals of high-impact, general science journals compared to lower-impact, specialty journals; in the talks of distinguished speakers; and in the criteria for grants and awards garnering competition. As it stands, the publish-or-perish model compels emerging researchers to put issues like perceived publishability, journal impact factor, and timeline to press ahead of relevant theoretical and methodological scientific issues when choosing their research topic — lest they (academically) perish.

We call on ourselves and other scholars — as reviewers, editors and mentors — to question and challenge the publish-or-perish model in service of scientific progress. How to do this? Mentors can encourage a diversity of interests and pointed inquiry into why theoretical and methodological choices are made within and outside their labs. They can support and promote the more time-intensive process of collecting diverse and/or more-representative samples. Editors and reviewers can explicitly broaden their scope for topics and methods that are appropriate and 'significantly advance science' at their journals. They can also question the validity of papers lacking diverse samples and not assume a paper requires an American sample to be valid.

Graduate students and other early-career scientists doing methodologically sound work that advances science in important ways on topics outside the mainstream may face difficulties getting it published in high-impact journals. Hiring, funding and award committees can provide and adhere to clear guidelines for reviewing scientists'

CVs that focus more on depth of inquiry in topics and methodology than impact factors — prioritising societal impact along with scientific impact. In general, when the focus is on quality, method and content rather than impact factor, outlet and quantity, scientists are freer to investigate topics that are outside the mainstream.

The pressures inherent in the publish-or-perish model compound the existing pressures on those doing science in the margins, and together they stunt the curiosity and ingenuity of PhD students and early-career researchers who may be interested in 'minor' topics perceived as too risky or niche. Such pressures also broadly prevent growth in understanding about topics that are anything but minor — those that regularly attract national and international attention. To do these topics justice — and to allow our science to aid our society — we need to prioritise diverse, representative scientists and samples, time-intensive methods, and a scientific environment that encourages such investments and connections. We have more than enough rich material in the margins; it's time for fully engaged scientific inquiry within the margins as well. □

Marginalia Science*

Pia Dietze¹, Ana Gantman²,
H. Hannah Nam³ and Laura Niemi⁴

¹Psychology Department, New York University, New York, NY, USA. ²Psychology Department, Brooklyn College (CUNY), New York, NY, USA.

³Department of Political Science, Stony Brook University, Stony Brook, NY, USA. ⁴Munk School of Global Affairs and Public Policy, University of Toronto, Toronto, Ontario, Canada.

*e-mail: marginaliascience@gmail.com

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