Open Science- Who is left behind?

*Open Access initiatives promise to extend access to scholarly conversations. However, the dominant model of Article Processing Charges, whilst lowering financial barriers for readers, has merely erected a new paywall at the other end of the pipeline, blocking access to publication for less-privileged authors. In this post, **Tony Ross-Hellauer, Angela Fessl**, and **Thomas Klebel,** ask whether open and responsible research practices could perpetuate existing inequalities resulting in a system where the rich get richer and researchers from the Global South and less privileged backgrounds lose out.*

Open Science for the few is just the extension of privilege

In June 2020, a group of researchers from the University of Leeds published a revealing blog post detailing their reasons for withdrawing from editorship of a Special Issue with International Journal of Environmental Research and Health, an Open Access (OA) journal published by MDPI. The authors detailed their disappointment to learn that an agreement with MDPI to cover the costs of five article-processing charges (APCs) for Special Issue articles was to be based not on need – i.e., dedicated to those authors, especially in the Global South, who lacked the funds for such APCs. Rather, the purpose of these funds was revealed in an email from MDPI to be "to attract more high-quality papers from the top scholars to increase visibility to the special issue". Therefore, "Scholars from developed countries [would] be given priority" because "[g]enerally considered developed countries have more abundant scientific research resources, experience and article yield that opens up possibilities for higher scientific research".

This case, which caused outrage among academics on Twitter, is remarkable for a couple of reasons. Firstly, funding for APCs is still a barrier to OA even amongst the most well-resourced researchers. But more worrying by far is the way this case makes explicit the continuing structural barriers to equity in research. As the Leeds researchers say, this is but "ANOTHER way of privileging researchers from high-income countries over those in low/middle income countries".

The sad irony of the case is further deepened by the fact that it is created by a new model of publishing designed to achieve OA, which supposedly promises, to "lay the foundation for uniting humanity in a common intellectual conversation and quest for knowledge" (Budapest Open Access Initiative, 2002). In fact, the APC model, while deconstructing the paywall blocking access for readers has merely erected a new paywall at the other end of the pipeline, blocking access to publication for less-privileged authors. Research already suggests this system may stratify publication patterns amongst researchers, with authors from "lower-ranked" universities more likely to publish in subscriptions journals and less likely to publish in OA journals that require an APC. Such divisions will surely only be exacerbated as new APCs reach new highs in the wake of a new agreement which prices articles in Nature journals at 9,500 EUR per article. And when you start digging, other examples of areas where Open Science might end up disadvantaging the groups its meant to help are not hard to find. If Open Science requires infrastructure, training and skills, which institutions are best placed to provide these? If opening research data should drive economic growth, which actors are best placed to benefit – the multinationals who can afford their own data science departments, or the SMEs struggling to keep up with the state-of-the-art?

> The APC model, while deconstructing the paywall blocking access for readers has merely erected a new paywall at the other end of the pipeline, blocking access to publication for less-privileged authors.

Such reflections should set off alarm bells for Open Science advocates. **Open Science is not an aim in itself – rather an umbrella term for a coalition of diverse practices centred around sometimes conflicting aims of transparency, participation, and equity**. This means we must be especially sensitive to the ways in which Open Science policies may actually *worsen* existing inequalities, and make efforts to mitigate these effects. Making processes open does not *per se* drive wide re-use or participation unless also accompanied by the capacity (in terms of knowledge, skills, technological readiness and motivation) to do so. These capacities are unevenly distributed. Factors like personal characteristics, prior reputation or levels of resources continue to have a strong impact on researchers' careers. Such differences are further intensified by other factors like geographic location, language abilities, technological skills, educational levels and access to basic equipment (e.g. Internet access). The traditionally-advantaged usually have more of such resources. Will their privilege mean that they are the ones to benefit most? And if so, how can we avoid this dynamic of the "rich getting richer", known as the Matthew effect? These are the key questions posed by the EC-funded project ON-MERRIT.

ON-MERRIT

ON-MERRIT (Observing and Negating Matthew Effects in Responsible Research & Innovation Transition) is a 30-month project funded by the European Commission to investigate how and if open and responsible research practices could perpetuate existing inequalities. Our multidisciplinary team uses qualitative and computational methods to examine advantages and disadvantages in Open Science and Responsible Research & Innovation (RRI). ON-MERRIT aims at developing a set of evidence-based recommendations for science policies, indicators and incentives that could address and mitigate cumulative (dis)advantages.

To do so, we conduct three closely related strands of research: First, we are *analyzing Open Science beneficiaries and dynamics* to better understand who stands to benefit from the current implementation strategies, as well as how and why. Thereby we focus on how current policy interventions actually drive new inequalities or exacerbate old ones. Second, based on these findings, we plan to *derive a portfolio of indicators* which will allow us to draw conclusions about the persistence of Matthew effects. And third, we will analyse gaps and blind spots in current RRI implementation guidelines and make policy recommendations for their future enhancement.

> We must be especially sensitive to the ways in which Open Science policies may actually *worsen* existing inequalities

To finally come up with a "Big Picture" of Matthew effects and their relation to barriers, drivers, and incentives for RRI practices, each research strand takes account of four main stakeholder groups, namely Research, Industry, Policy and Society. Furthermore, to add depth to our broad investigations, we focus on the *gender dimension* as well as on three specific scientific domains relevant to the UN's Sustainable Development Goals, namely *agriculture, climate* and *health*. If Open Science and related RRI policy interventions *are* subject to the Matthew effect, then we will make policy recommendations on how research institutions, funders and others should amend indicators and reward/incentive schemes to address and/or mitigate these factors.

The ON-MERRIT project has now been running for one year and has just entered its hot phase of primary research. So far, we have found that scientific resources are currently used only by companies in certain R&D-heavy fields. Our planned follow-up inquiries and questionnaires will try to shed light on whether open access to research outputs could change this. We have also found that researchers and policy-makers are described as living in different and frequently incompatible worlds. Therefore, the direct use of research outputs can be lower than might be expected, with policy-makers relying heavily on their close networks for scientific information, which don't necessarily include academics.

In the coming months we will be conducting a host of inquiries, surveys and expert workshops with researchers, industry and policy-makers, as well as continuing our analysis of Open Science resources. If you are interested in any of our activities, we invite you to get in touch!

Note: This article gives the views of the author, and not the position of the LSE Impact Blog, nor of the London School of Economics. Please review our comments policy if you have any concerns on posting a comment below.

Image credit: Tim Green, via wikicommons