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Major socio-cultural barriers to widespread adoption of open scholarship

Jonathan P. Tennant, Neo Christopher Chung, Tobias Steiner

Affiliations:

JPT: Jon.tennant.2@gmail.com, Institute for Globally Distributed Open Research and Education, Indonesia.

NCC: nchchung@gmail.com, Institute of Informatics, University of Warsaw, Poland.

TS: info@flavoursofopen.science, Community-led Open Publication Infrastructures for Monographs (COPIM), Centre for Postdigital Cultures, Coventry University, UK.

One problem with any strategy is that it must be agreed upon, and if not this creates a first-mover tension between engaged stakeholder groups. Therefore, understanding the potential risks associated with a move to open scholarship at a combined individual and institutional level can help to mitigate them and overcome the collective action problem. This research proposal is based upon the Foundations for Open Scholarship Strategy Development (1), which aimed to agree on a broad, international strategy for the implementation of open scholarship that meets the needs of different national and regional communities, but also works globally. As part of this project, we summarised key internal and external conditions that open scholarship faces, which represent potential focal points of future discussion, research, and policy development. Here, we distill this into key limitations to investigate.

1. **The impact of for-profit private interests.** “Open”, which has diverse uses in communication and other fields (2), may provoke an image opposing for-profit or proprietary, and pitches concepts of the “commons” against capitalism and corporatism (3–5). Now, many proprietary systems effectively control critical infrastructure that are supposed to support and enable open scholarship and reproducible research (6). The case for public access, and publicly-governed control of scholarly processes and technologies, is vast, and the tensions this creates with so much influence from the private sector remains a critical point of future research.
2. **Different political agendas and environments.** Scholarship is often funded by large governmental and non-governmental institutions that reside in particular geopolitical environments. How do public and private funding agencies, research institutes, and higher educational entities reconcile competing viewpoints when developing policies at national and institutional levels (e.g., for funding and evaluation purposes, or for Open Access policies) (7,8).
3. **Researcher engagement.** Why has the knowledge and uptake of open scholarship practices varied so much between and within different research communities? For example, why are there still such huge differences in the uptake of open research-focused practices between STEM fields and the Social Sciences and Humanities? And how can a larger shift towards an actual effectuation of open scholarship be realized through open approaches that also span scholarly communications, teaching and learning in academia (9,10); for example, using Open Data in seminars, embracing collaborative practices of Open Education, and openly sharing knowledge by means of the digital sphere (11). Does ideological or pragmatic messaging work better for engagement, for increasing awareness and practice, while decreasing apathy.

Furthermore, do ‘incentives’ really work, and how does one reconcile notions of being ‘incentivised’ to do more robust and reliable research.

4. **Language and appearance of community.** Open scholarship and communication have been often studied and promoted in the context of WEIRD (Western, Educated, Industrialized, Rich and Democratic; (6)) populations and societies. To what extent does this bias reinforce or amplify current systemic biases? What effect does this hegemony have on epistemic diversity and power of “global” knowledge discourses (12).
5. **Copyright and licensing.** To what extent can scholarship draw valuable lessons on licensing and copyright issues from the experience of the international Open Education movement around the introduction of OER into Higher Education policy and practice (13), and the realm of Free and Open Source Software (FOSS) (14)? How do licensing and copyright restrictions ultimately impact downstream usage, including with respect to non-academic impact.
6. **Engaging non-academic stakeholders.** The role of science in society, framed around notions of openness, needs to be re-examined. How does scholarship influence policy, and vice-versa? How to catalyse open knowledge for innovation, and economic, social, and cultural prosperity (e.g., in light of the United Nations Sustainable Development Goals) (15,16). A key component of this will be whether modern research institutes are sufficient to adapt to a rapidly changing society, or need to be rethought and redesigned (17).
7. **Finances.** Acknowledging limitations on funding, what are the critical components of open scholarship services and infrastructure, including communities, that require support in order to achieve fiduciary sustainability (18). At the present, critical funding elements are not democratically embedded or distributed throughout existing scholarly systems. We know that around USD \$25.7 billion is spent on the current system each year (i.e., English-language STM journal market), so how can this be strategically reinvested into more sustainable, non-profit, open-source, community-managed, open scholarship services and infrastructure.

We propose that these areas could provide a high-level strategic basis for future research into the socio-cultural limitations of open scholarship, and could be transferred into our understanding of the different elements of open society (19). It will be most beneficial when different research communities can specify how the pluralistic values, principles, norms and practices of ‘openness’ can be embedded with minimal friction into their disciplines (20). Rather than simply acknowledging that ‘open’ scholarship is akin to ‘better’ scholarship, the ultimate aim here is to develop an inherently strategic approach to precisely when and where openness will be most effectively implemented in order to

achieve a desired outcome. Such introspection requires a much deeper appreciation of the functional limitations of 'openness'.

Much of this research must be framed under the general and highly complex issue of how scholarship diffuses into, and intersects with, other critical components of society (17). We foresee this array of problems requiring radical intersectionality and collaboration between institutes and expert stakeholders from information sciences, economics, legal affairs, social science and humanities, psychologists, the wider information industry sector, political science, policy-making, human resources, and across the entire spectrum of NGOs and vendors and users that use scholarship in some way in their lives.

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