Comments on the first draft of the Recommendation on Open Science

Liette Vasseur, UNESCO Chair on Community Sustainability: From local to global
With the contributions of Aleksandar Necakov (assistant professor, Biology), Catherine
Longboat (assistant professor, Indigenous education), Giulia Forsythe (associate director, Centre
for pedagogical innovation) and with the support of Sharlee Cranston-Reimer (research officer),
Nicole Nolan (associate university librarian, research), Jocelyn Baker (assistant to the Chair and
rapporteur), and Heather VanVolkenburg (assistant to the Chair and rapporteur). About 12
participants attended the session.

On December 15, 2020, the UNESCO Chair on Community Sustainability: From Local to
Global, Brock University Library and the Office of Research Services organized, through the
workshop series: "Building Better Research", a dialogue on Open Science. The aim was to
discuss the first draft of the UNESCO Recommendation on Open Science and receive comments
form the panel and the general university community (including faculty, staff and students). The
following is the presentation of the comments from the three panelists and the discussion that
followed. The last section of this document presents some possible considerations for the
Recommendation.

Presentations of the panelists

Liette Vasseur: I presented the draft recommendation and its origin. She also presented the brief
"Open Science Beyond Open Access: For and With Communities A Step Towards the
Decolonization of Knowledge" that was produced by Chan, Budd Hall, Florence Piron, Rajesh
Tandon and Lorna Williams for the Canadian Commission for UNESCO. The main point that
would be discussed with the following panelists was the importance of equity in open science.
For whom? How? What?

Aleksandar Necakov: He discussed open science from the viewpoint of technology. He
emphasized the importance of democratising technology - to make available to all people. The
did an overview of several open-source analysis tools – user friendly platforms such as
Cytoscape, R, Image J. This type of scientific "open access" software is amazing but how open is
it for those who do not have internet access? Internet access is a problem that comes up again
and again throughout this panel discussion. What about open access of academic competitions?
For example, the Synthetic Biology Competition is an amazing opportunity for students but how
many students can actually access this? The cost is steep, far too steep for many qualified
individuals. How can we emulate this type of experience in a more open way? Can it be
replicated at a cheaper cost in other communities? Other ways for profs to get student
engagement and promote "open, cross-generational learning" is to send out teams of students on
high school outreach missions. There is also a need to give back to the global communities that
have given us bright minds (e.g. developing countries whose citizens moved here in Canada and
now contribute to our country in meaningful ways).

Catherine Longboat: She placed a major emphasis on open science for equity. The lack of open
science is causing a lack of knowledge building by Indigenous Peoples and wedging a wider gap
between the Two-Legged and other creatures that exist in the waters, on the land and the sky.

She mentioned the challenges of the Indigenous Peoples in Canada who live in the 'dead internet' spaces. As she mentioned "This lack of open science spaces is causing a great diversion of knowledge to be offered by Indigenous peoples so much so than did the first outbreak of sickness and diseases unknown to Indigenous peoples or the residential schools." She continued stating that "Closing in on 'dead spaces' may only create another level of selected colonial privileged intelligence with the accumulation of material objects such as tablets, computers and iPhone, to capture elements of human skill and immediacy rather than build the connections between the known and unknown amongst living systems that make up the universe. Such devices could capture and connect with Indigenous knowledge. It could serve as opportunities for Indigenous knowledge sets to connect and bridge the gaps between the past prior to settler exposure and expectations as well as force to change original stories. But these devices are useless in 'dead space'. She concluded "I hope Open Science can manage to connect silos of knowledge spaces rather than 'dead spaces' but not to exploit and intrude at yet another level of knowledge for economic diversity of negative retention."

Giulia Forsythe: She discussed the process of creating open science. She explained that there is a need for iterative policy design when the Recommendation will be adopted, and countries attempt to implement the recommendation elements. The first question will be: for whom, about whom and by whom. Policy development will be complex as it relates to values, movement, governance, and code of conduct. These will influence how to reclaim history, amplify expression narratives, and economy, which in turn may also affect open source, labour, privacy, embodiment, etc. At the university level, implement policies will be a challenge as they will encompass several aspects such as open data, open notebooks, open access for publication, decolonization, open educational practices, open education resources, open source and citizen science. This will not be an easy process as currently as she mentioned "it is not a healthy ecosystem of knowledge" due to several factors such as epistemic exclusion, colonial capitalism, ideological, political and economic drivers, market power, and other gatekeepers in publication world controlling decision, funding and more. She mentioned that we should invest for the future, not the past and open science should be for public good and this will require a change in researcher viewpoint from staying in the own lab/office to start working with and for communities.

Following discussion: incentives for open science? It is a challenge as the mentality, especially in natural and life sciences is to always publish in high impact factor journal. Despite the fact that this is now discouraged as a major attribute to evaluate a researcher, most reviewers/ evaluators still rely on this system. This bring inequity, especially for certain disciplines where funding is smaller or developing countries. Researchers in such situations cannot cover the costs for open science. But does high impact mean exactly? Aleksandar stated: "I agree, no nonsense approach – commodifying of scientific production. The community needs to slow down and take the time to properly read through content (in high impact journals but also in the lower impact and open access journals). Publishing in lower impact journals should be happening more often by everyone, not just those that cannot afford the higher impact publishing. As it stands, publishing in lower impact journals limits the perceived successfulness of the authors. But what is success??? Science should be deemed on merits, not impact factors."

Another point: how can we change this mentality that too often the world gives greater value to something that has a cost or a price? This is a big question. Liette stated Why do students choose a gym over a walk in the forest? How can we deconstruct this perception that more money means better?" Aleksandar continued "We think of science being neutral and fair and it's not, there are egos. We are also dealing with public money and yet the competitive nature of research and obtaining full tenure, there is an opposing force – so it brings challenges. People are often fearful for their careers; fear is a toxic driving force in the discipline." Giulia mentioned that there is a need to dismantle capitalism.

Another question was "how to introduce open science in your teaching when the current curriculum is already packed? Catherine responded by stating "The question of "How to introduce" is an example of the very problem. This is not something to be compartmentalized and "introduced". This should just exist within programs! It has to. The Indigenous ways of knowing - always 2 different perspectives and by offering those perspectives and encouraging the sharing and discussion of students to come to their own conclusions to determine if this is for the common good or is there some inhibiting them from sharing in the common good. Critical thinking, a sharing of ideas and taking the time to listen. This is open science. But, for me going to public school, it was so different from my Indigenous learning, because to get a perfect mark you had to know something only one way. Learning through memorization is not learning. We must learn how to critically analyze open science not just get into the game of making it mainstream and capitalistic. Open science is also not just storing and publishing and circulating…but engaging through conversation."

Considerations

The discussion brought some interesting points that the committee may want to consider while working on the second draft of the recommendation.

Making the importance of open science as a public good. For everyone, it was clear that from elementary school to high education and then through the public and private sector, there will be a need to include as a principle the idea that open science is for public good and new way of thinking on how research and education can reach more people in all communities (not only the most elite ones).

Open access for publication, avoiding the trap of a two-tier system. The proliferation of publishing companies (many being predatory) to promote open access but at great costs currently discriminate between researchers who have high funding levels and those who have less funding, especially in developing countries or for Indigenous Peoples. This will have to be acknowledged and countries will have to start supporting their own national publishing companies that currently struggle (as many are for not-for-profit organizations). There are examples now of peer review journals that are run by volunteers and supported by one or more universities. However without some basic funding this remains limited.

Finding a way to remove the dead spaces. As Catherine stated, in many communities in Canada and especially on First Nations territories, Internet is often not accessible (and it was especially painful to learn which students struggle during the COVID-19 pandemic because of not having

Internet access at home and having to travel to a more public place to work, increasing the risk of infection). This aspect will need to be addressed as a strong possibility for limiting the implementation of the recommendation in many countries.

Supporting learning should not be expensive. In addition to removing the 'dead spaces', the other issue is that Internet and access to educational online resources should not be expensive. With the pandemic, there has been a proliferation of this new education market where students and professors need to pay great prices to have access to the material. There will be a need for the recommendation and countries when it is implemented to identify the right and supportive open sources that can be appropriate for students and professors. For example, Open Science Framework (osf.io) which has received the GuideStar rating of Platinum, has created Open Scholarship Knowledge Base (oskb), which is a free access of educational material for all ages. The only warning for many of these sites (including Creative Commons) is to ensure a high standard for equity, diversity, credibility, and integrity, and be non-discriminatory, apolitical or culturally inappropriate (e.g., code of conduct of oskb).

Informing, communicating and educating. To be inclusive, transparent and equally accessible to ALL, the recommendation will require to better define the how and for whom, about whom and by whom. This remains somewhat vague and we encourage the committee and gradually the countries during implementation to explore new ways to get this recommendation known by people. Too many continue to be exploited not knowing the right for open access and this will remain an issue unless great efforts are put initially to inform, educate and communicate. This has been a challenge with other UNESCO recommendations such as the one of the definition of science and scientists: almost no one knew about the 1974 recommendation and despite some effort for the 2017 version, I am very well aware that less than 25% of researchers and even governmental agents are aware of it. This has most likely not trickled to the general public at all.

In conclusion, open science is a must but will require a change in mentality from educators, researchers, private and public sectors as well as government. The implementation will be slow and will have to consider that this unhealthy knowledge ecosystem is very complex.