Una publicación de la Cátedra Libre Ciencia, Política y Sociedad
y de la Red de Pensamiento Latinoamericano en Ciencia, Tecnología y Sociedad

Ciencia Tecnología y Política
Año 8 N° 14 Mayo 2025

"The solution to the oligopoly of scientific publications is to reinvest into national platforms that we collectively own". Interview with Vincent Larivière

Interview by
Lucía Céspedes
and Santiago Liaudat

Abstract: Interview with Vincent Larivière, world-renowned expert in open access, scientific publishing, multilingualism and sociology of science. PhD in Information Science from McGill University, he holds the UNESCO Chair on Open Science and co-holds *the Chaire de recherche du Québec sur la découvrabilité des contenus scientifiques en français*. Vincent is also professor at the School of Library and Information Science at the Université de Montréal, Scientific Director of the Érudit publishing consortium and deputy scientific Director of the Observatory of Science and Technology at the Université de Québec à Montréal. In this interview, we focus on the issue of scientific publications, the question of science and technology assessment and indicators, and proposals for open science.
Keywords: scholarly communication; scientific publishing; research infrastructures; editorial oligopoly; research assessment; open science

"La solución al oligopolio de publicaciones científicas es reinvertir en plataformas nacionales que nos pertenezcan colectivamente". Entrevista con Vincent Larivière

Resumen: Entrevista con Vincent Larivière, experto reconocido mundialmente en temas de acceso abierto, publicaciones científicas, multilingüismo y sociología de la ciencia. Doctor en Ciencias de la Información por la Universidad McGill, detenta la Cátedra UNESCO sobre la Ciencia Abierta y es co-titular de la Cátedra de investigación de Québec sobre la descubrabilidad de contenidos científicos en francés [Chaire de recherche du Québec sur la découvrabilité des contenus scientifiques en français]. También es profesor en la Escuela de Bibliotecología y Ciencias de la Información de la Universidad de Montréal, Director Científico del consorcio editorial Érudit, y vicedirector científico del Observatorio de Ciencia y Tecnología de la Universidad de Québec en Montréal. En esta entrevista, nos enfocamos en las publicaciones científicas, la evaluación y los indicadores de CyT, y las propuestas de la ciencia abierta.
Palabras clave: comunicación académica; publicaciones científicas; infraestructuras de investigación; oligopolio editorial; evaluación de la ciencia; ciencia abierta

"A solução para o oligopólio das publicações científicas é reinvestir nas plataformas nacionais que possuímos coletivamente". Entrevista com Vincent Larivière

Resumo: Entrevista com Vincent Larivière, especialista de renome mundial em acesso aberto, publicação científica, multilinguismo e sociologia da ciência. Doutor em Ciência da Informação pela Universidade McGill, ele é titular da Cátedra UNESCO de Ciência Aberta e co-titular da Cátedra de pesquisa do Québec sobre a descobrilidade dos conteúdos científicos em francês [Chaire de recherche du Québec sur la découvrabilité des contenus scientifiques en français]. Vincent também é professor da Escola de Biblioteconomia e Ciência da Informação da Universidade de Montreal, diretor científico do consórcio de publicações Érudit e vice-diretor científico do Observatório de Ciência e Tecnologia da Universidade de Quebec em Montreal. Nesta entrevista, enfocamos o tema das publicações científicas, a questão da avaliação e dos indicadores de ciência e tecnologia e as propostas para a ciência aberta.
Palavras-chave: comunicação acadêmica; publicação científica; infraestruturas de pesquisa; oligopólio editorial; avaliação da ciência; ciência aberta

Año 8 N° 14 Mayo 2025
Received: 17/03/25
Accepted for publication: 08/05/25
https://doi.org/10.24215/26183188e130
https://revistas.unlp.edu.ar/CTyP
ISSN 2618-3188

UNIVERSIDAD NACIONAL DE LA PLATA

| Ciencia, Tecnología y Política | Año 8 | N°14 | Mayo 2025 | ISSN 2618-3188 | www.revistas.unlp.edu.ar/CTyP |

Vincent Larivière

"The solution to the oligopoly of scientific publications is to reinvest into national platforms that we collectively own"

Interview by Lucía Céspedes and Santiago Liaudat

Interview with Vincent Larivière, world-renowned expert in open access, scientific publishing, multilingualism and sociology of science. PhD in Information Science from McGill University, he holds the UNESCO Chair on Open Science and co-holds the *Chaire de recherche du Québec sur la découvrabilité des contenus scientifiques en français*. Vincent is also professor at the School of Library and Information Science at the Université de Montréal, Scientific Director of the Érudit publishing consortium and deputy scientific Director of the Observatory of Science and Technology at the Université de Québec à Montréal. In this interview, we focus on the issue of scientific publications, the question of science and technology assessment and indicators, and proposals for open science.

Received: 17/03/25 | Accepted for publication: 08/05/25
DOI: https://doi.org/10.24215/26183188e130

| Ciencia, Tecnología y Política | Año 8 | N°14 | Mayo 2025 | ISSN 2618-3188 | www.revistas.unlp.edu.ar/CTyP |

Photo: courtesy of Vincent Larivière

How does the business model of commercial academic publishers work? Why is it so profitable?

It's profitable because we're dealing with two types of capital: symbolic and economic capital. We are basically, as a community, paying a lot of money in order to receive symbolic capital from those scientific journals. Historically, journals were owned by scientists, societies and universities. When the digital age arrived, these nonprofit organizations were unable to make the shift from print to digital. There were already a lot of for-profit publishers in the 1990s, but they did not have the control that they have today. What happened then is that our community made agreements with these for-profit companies so that they could make that shift from print to digital. One thing that is important to remember is, given that those journals were owned and created by our scientific societies, investing in them was something that was natural. You would invest into those organizations because they are there for common good. They are there to disseminate the knowledge that we are collectively producing. Being a volunteer for these organizations made sense from the point of view of scientists. From the point of view of libraries, it also made sense to maybe give them more money than the actual cost was, because in the print era journals were quite expensive. There was this view that by purchasing or by subscribing to that journal we were actually subsidizing a scientific society. So the money stays in the family. Once these journals were purchased by for-profit publishers, academics continued to give their time for free. Libraries continued to give more and more money to them. But the money was not staying in the family anymore. It was going to the stakeholders of these organizations. So the model is profita-

ble because it uses scientists as free labor from the point of authorship and as referees. It underpays those who make the editorial decisions, the editors... and that's in cases where they are paid. Editors-in-chief receive symbolic amounts of money. Academics continue to do it because journals and publishers control the circulation of symbolic capital within the scientific field. This is a social construct. But as long as we don't find either other ways to allocate symbolic capital or that we reclaim control over our journals —which could remain the way symbolic capital circulates— we're still going to be paying lots of money. Their profit margin is out of this world! It's among the highest of all industries combined. It's higher in proportion than any other type of industry at the world level. This of course can only be achieved when you are not paying any of the actors and you're actually selling that merchandise to those same group of people who actually did the work.

You identified those actors and stakeholders in a 2015 article, where you and your co-authors demonstrate the existence of the "oligopoly of scientific publishing". In a more recent work, you also show that this oligopoly is consolidating and now it's expanding to open access publishers. What are the current tendencies in this sense?[1]

Corporate publishers understand the publishing world very well. That's normal. When the movement towards open access took more space, I'd say 15 years ago, they wanted in, in some capacity. So they are willing to go open access but not to reduce their profit margins. They managed to take control of a big part of the discussion around open access by convincing governments that paying to publish was now the way to make research accessible. It starts with a sound argument: that it costs money to publish, which, of course, everyone's going to agree with. But using this fact, they came up with the concept of "article processing charges" [APCs], which already existed in the print world. In Physics and Mathematics you would have that because indeed it was expensive to print equations and figures. So in these fields people were used to paying in the past. But they rebranded this concept to make money out of open access publishing and not reduce their revenue streams. So for a couple of years they've been making money out of both sides, from the author's as well from the library point of view. Now this is a bit less the case because of transformative agreements,[2] but their revenues have not reduced in this open access world.

How has the APC-based model, which puts the financial burden on authors, affected the open access movement?

In some ways, it's a bit of a failure of the open access movement. I don't feel so good talking about the "open access movement" because I don't think there's a "movement". I think things are a bit more complex. The way Europeans have managed that is different from the way Latin America has managed that. But it's a failure

---

[1] Larivière, V., Haustein, S., & Mongeon, P. (2015). The Oligopoly of Academic Publishers in the Digital Era. *PLOS ONE, 10*(6), e0127502. https://doi.org/10.1371/journal.pone.0127502; Shu, F., & Larivière, V. (2024). The oligopoly of open access publishing. *Scientometrics, 129*(1), 519–536. https://doi.org/10.1007/s11192-023-04876-2.
See also: Cátedra Libre Ciencia, Política y Sociedad. (2018). Publicaciones científicas: ¿Comunicación o negocio editorial? *Ciencia, Tecnología y Política, 1*(1), 005. https://doi.org/10.24215/26183188e005; Red PLACTS (2022). Propuestas para una política soberana en materia de publicaciones científicas. *Ciencia, Tecnología y Política, 5*(9), 086. https://doi.org/10.24215/26183188e086

[2] Transformative Agreements are agreements between academic institutions and scientific publishers by which institutions pay for access to a publisher's journals and the same license includes the APCs that authors would pay individually to publish in open access.

of at least part of the open access movement, mostly in the North, where open access basically equates, in the ears of most scientists, to paying article processing charges. It's a success from for-profit publishers. They really managed to make an adequation between the concept and their view of the concept. So they're largely dominating the discourse. We've also seen the emergence of for-profit publishers that are purely open access, such as Frontiers, MDPI, and to a lesser extent, Hindawi. They are for-profit publishers that are 100% open access and therefore can only rely on article processing charges to make money. Which of course leads, in that specific context, to a huge conflict of interest in the sense that, given that those journals are companies that are made to make money, they have no incentives to reject papers. This is different in the world where you actually need readers to live, you need to publish quality stuff. In an APC-based world you only need authors. You don't need readers to exist from an economic point of view.

You mentioned transformative agreements. Are these viable solutions to avoid APCs or are they part of the problem?

I think transformative agreements are a clever idea from publishers, but not a good idea for universities because they are spending amounts of money that are increasing all the time. We're just strengthening our dependency on for-profit publishers by doing that. In these transformative agreements actually very few journals have moved to open access. Countries have publication slots in order to publish in open access. But given that everyone pays subscription fees, these slots have very little value because people continue to pay again for access to the journal. From my point of view, this can only be temporary. I don't think there's any solution that goes through these types of agreements. The solution, if I may, is to reinvest into national platforms, into journal flips, into things that we collectively own. We're in an absurd situation where we are paying tens of billions annually in order to disseminate stuff that could mostly be done not for free, but for a very small fraction of that. These organizations make 40% profit by having on their payroll people whose job is to cut access. All of these overheads would disappear in a system that we collectively owned for a fraction of the price. The only thing that we need to solve is the symbolic capital that we grab on through these journals. No, transformative agreements are not the solution. I think most universities and governments are realizing that. I see the golden age of transformative agreement is behind us.

The companies that make up the editorial oligopoly are not merely publishing houses anymore, they currently also offer a wide range of services, from editorial workflow management to statistics, metadata and scientific information. What are the consequences of this integration and privatization of the means of production of knowledge?

Twenty years ago, a company like Elsevier realized that scientists were using the Web of Science to find papers on their platform and said “that's absurd, we have all of the metadata”. So they created Scopus as a tool to find literature. Then they realized “we should have a preprint server”, and so they purchased SSRN.[3] Basically they are everywhere in the ecosystem, which makes

[3] The Social Science Research Network (SSRN) is an open access research platform that functions as a repository for sharing early-stage research. It is not an electronic journal, but rather an electronic library and search engine. Elsevier bought it in 2016. https://www.ssrn.com/index.cfm/en/

them collect money at every level and they can make deals with universities. When you purchase the entire bundle of journals, it gives you access to different tools allegedly "for free". So it strengthens its control over the system. And it encompasses another problem. A company like Elsevier indeed disseminates papers, possesses the tools to find papers and also does some surveillance. There's been well documented instances where one of these publishers censored some information for Chinese readers so that they would not have access to some papers about topics that are of controversy. The control of the information and all of the data surrounding our use of information is huge. It's a double problem: it's a problem of not having control over our own outputs, which we are giving for free, but also the problem of being, one could say, monitored in our use of that information. I don't know what to think positively about that, because, again, in many ways we don't need them. They need us more than we need them. The preprint model that some fields have been using and that almost all of us used during the pandemic can work. We're all reviewers in some capacity. We can all assess our manuscripts. And we're still holding on to this legacy system which is helping no one. We're in a small paradox in the sense that corporate publishers control more and more journals that have value, journals that have high impact factors. In a paper that's still under review, we look at the corporate control in two databases: in the Web of Science as well as in Dimensions.[4] One is a restricted database that only indexes what they consider to be the most important journals and give them an impact factor and the other one tries to index everything. What we see is that in the Web of Science the place occupied by the top five is increasing even in recent years. So those journals published by Elsevier, Springer, Taylor & Francis, Sage and Wiley are taking more and more space, but in Dimensions it's the opposite. This means that other journals exist, that alternatives exist. There are publication spaces that we can invest in and there's one reason why the community is not investing in them as much as they could: the fact that journals are still the vector of symbolic capital, and these for-profit journals have a higher prestige. This is a social construct. Let's say that Nature tomorrow creates a new journal that would be called Nature Information Science or Nature Sociology. It would take, let's say, one year for the journal to become the top journal of the field. Because of its prestige, it would receive the best papers and then would become the best journal. There's a self-fulfilling prophecy where you're putting honey for scientists and then everyone is going there. The example that I gave about Nature is something that we've seen in many fields, because Nature has created a brand and it's using it to create journals. They've also understood that quite well.

What is the alternative to this process of concentration and surveillance?

We need national databases, but also international, decentralized, collectively owned infrastructures. Because actually national databases are as good as the nations and the trustable aspect of nations that have created them. What's happening in the US over the last couple of weeks really makes me think a lot about how we should

[4] Web of Science is a paid-access platform that gives access to multiple databases that provide reference and citation data from academic journals, conference proceedings, and other documents in various academic disciplines. It is currently owned by Clarivate, a British-American firm. Dimensions is a database of abstracts and citations and of research grants, which links grants to resulting publications, clinical trials and patents. Dimensions is part of Digital Science & Research Solutions Ltd, a company headquartered in London.

| Ciencia, Tecnología y Política | Año 8 | N°14 | Mayo 2025 | ISSN 2618-3188 | www.revistas.unlp.edu.ar/CTyP |

think about these national infrastructures. The medical community has been relying on PubMed for several decades for medical documentation.[5] Nowadays PubMed is very close to being censored. The National Institutes of Health website right now is censored, when you go on their website and you search for specific keywords, nothing comes up even though we know that there's some of these things in there. The next step is to censor PubMed, to cut PubMed because it's an expense? So we need to think of collective infrastructures. But these infrastructures need to be decentralized. They cannot be under the control of one single nation. They need to be multilateral exercises with replication everywhere. I think there's a role for international organizations, be them UNESCO, the OECD to some extent, perhaps the World Science Council, organizations in which scientists are willing to invest because these organizations are working for common and develop in there the spaces to be able to have these international conversations. And many of these organizations also have developed ways of giving a voice to those who don't have a voice or at least having some kind of level of multilingualism in their organization. I think that's a good beginning towards a more equal international scientific system.

In that sense, there are some collective initiatives like Érudit in Canada, or SciELO, Redalyc and Latindex in Latin America.[6] Are these infrastructures helping to reduce our dependence on commercial platforms?

They are, but they need to be well supported by governments. I think in Canada and in Quebec there's strong support both in the government as well as in the community. But this is where these platforms intersect with research evaluation and language of dissemination. Communities that have strong ties with their nations... I'll try to phrase it differently: non-English-speaking countries are much more sensitive to those aspects. There's still a huge part of researchers here who still publish in French. You would have that also in the Spanish platforms that you mentioned. But still those platforms are not seen as publishing the most important research because if someone finds something that is considered very important, they're going to try to publish it into what they consider to be an international journal... which in most cases means American or British. Journals have a nation in some way, and if you take a journal —Science, for instance— these journals are seen as international but 90% of their authorship is American. Going back to national platforms, they need to be properly supported by governments but they also need to be supported by scientists who will want to invest in them. Some are doing it, I think not sufficiently enough,

[5] PubMed is an openly-accessible free database which includes primarily the MEDLINE database of references and abstracts on life sciences and biomedical topics. The United States National Library of Medicine (NLM) at the National Institutes of Health maintains the database.

[6] Érudit is a Quebec-based non-profit publishing platform. Founded in 1998, it is the largest provider of Canadian French and bilingual research publications in the humanities and social sciences, as well as select physical and natural science journals. SciELO is a bibliographic database, digital library, and cooperative electronic publishing model of open access journals. Originally established in Brazil in 1997, today there are 16 countries in the SciELO network and its journal collections. Redalyc is a bibliographic database and a digital library of Open Access journals, supported by the Universidad Autónoma del Estado de México with the help of numerous other higher education institutions and information systems. The project started in 2002 with the general aim of building a scientific information system made up by the leading journals of all the knowledge areas edited in and about Latin America. Latindex is a bibliographical information system available for free consultation. Established as a network in 1997, the project is based on the cooperation of 17 national resource centers that operate in a coordinated scheme for the gathering and dissemination of relevant information and data on the Iberoamerican journals.

| Ciencia, Tecnología y Política | Año 8 | N°14 | Mayo 2025 | ISSN 2618-3188 | www.revistas.unlp.edu.ar/CTyP |

but this needs to be valued by different universities. The issue of incentives is actually quite a crucial one. Scientists react to what they consider as important, but also what governments will consider as important. So if governments develop evaluation policies that consider non-national publications as well as national publications equally, then it's going to strengthen our collective infrastructures. Bottom line, what we need to do is to gain back control over our means to disseminate research. We outsourced that in the mid 1990s. Now we need to take that back.

You brought up research evaluation. Indicators produced and marketed by Web of Science or Scopus are deeply entrenched in national and institutional assessments of science. What's the influence of those metrics in setting research agendas, particularly in peripheral countries?

They should have no effect, but they are having a huge effect. The biggest issue is the journal impact factor. We need to remember where this comes from. The journal impact factor was created to help librarians develop collections of periodicals, to decide what journals to subscribe to. Thirty years ago, it became no longer an indicator for that because of the advance of electronic publishing, and became an indicator to evaluate scientists. It's actually a complex question. Bibliometric evaluations can be useful to understand the type of research that is being done, but it needs to be done at a higher level. It's interesting to use these tools to assess various policies at the institutional level, understanding strengths and weaknesses. But when it comes to evaluating individual scientists, I think everyone understands that they are problematic. Still, it's very difficult to get away from them. In some countries these tools are helping to go beyond, let's say, nepotism in academia and stuff like that. By outsourcing impact instead of having a peer review committee, you can have data that's going to give you a relatively objective point of view. It does solve those cases but it leads to all these other situations where publications are the only thing that counts. By doing that, we're kind of losing the reason why we're doing research. I've been teaching research evaluation for about 20 years here in Quebec, telling students about the journal impact factor. And when I was presenting those things 20 years ago, most students were not aware of that. They did not know what the impact factor was. Nowadays, masters' students are aware of the journal impact factor. They know that they need to publish in the good journals rather than the bad journals. I don't think that's an improvement. When people start to do research, they do it because they find it interesting. They want to cure a disease. They want to be challenged, stimulated. They don't want to publish in a high impact factor journal. That's not what drives them into science. But very quickly, it seems that the system pushes them into that direction, with plenty of consequences. We're talking about the brightest minds that we have, who should actually be able to do research on the things that interest them and what they consider to be the most important things to pursue. Instead, unfortunately, we're putting over that a layer that makes them work not on the things that are the most important, but on the things that they think will lead them to the best journal, which is not how things should be done. Research incentives are crucial and very sensitive, because they lead to a situation where people lose interest in research on the communities that need them. If you work in a given university, the community around that city should benefit from the research that you're doing. But if you want to publish in

| Ciencia, Tecnología y Política | Año 8 | N°14 | Mayo 2025 | ISSN 2618-3188 | www.revistas.unlp.edu.ar/CTyP |

Photo: courtesy of Vincent Larivière

a high impact factor journal, and in order to do that you need to work on some European-based problem, then you're actually not contributing to the society that actually needs it. I think we need to change the value that we're giving to national research, considering it maybe more important or at least as important as research that has international resonance. There's a criticism there of what we consider to be "international", which is almost always a US or eurocentric problem.

There's been a couple of initiatives —for example, Latmetricas in Latin America[7] — that aim to develop new, more locally relevant indicators and metrics, that measure what needs to be measured in certain places. What other mechanisms could be interesting to explore?

I'm a bit divided with that in the sense that I don't think we need more indicators. I don't know them, so I cannot put a judgment on the quality of these indicators. It's very difficult to create indicators and maybe they have found a way to do it and I certainly hope so. But I think we need to go back to a more holistic evaluation of people, understanding people's trajectories, understanding their contribution to science and to society. I fail to see how this can be done otherwise than through peer review. Of course I'm a big fan of data. But I think data are meaningless without understanding in a holistic manner what's the trajectory of individuals or research groups, trying to see that as something that is relatively coherent. I don't know the details of that, but we definitely need to have ways of understanding scientists' contributions to society. Sometimes there's quantification that can be done, other things can be assessed through mostly peer review.

[3] Cancino, R., Albis Salas, N., Villarroel Valenzuela, J., Robles-Belmont, E., Oliveira, T., Ràfols, I., Palacios-Núñez, G., Ortiz Núñez, R., Flores Vargas, X., Restrepo Fernández, M. C., Levin, L., Mascarenhas e Silva, F., Barata, G., Vélez-Cuartas, G., Uribe-Tirado, A., Lucio-Arias, D., & Mugnaini, R. (2024). Manifiesto por las métricas socioterritoriales de ciencia, tecnología e innovación elaborado en Latmetricas: Temuco, Chile. 15 de noviembre de 2023. Ciencia, Público y Sociedad, 1(2), 63-66. https://revistas.unc.edu.ar/index.php/cps/article/view/47504

In Latin America there are lively debates about reforming research assessment[8], but we still rely on standard, quantitative approaches. Do you think this debate is different in central countries?

The case that I know the most is the case here. Canada did not develop any strong quantitative research evaluation culture. We're in a country where higher education is not a national but a provincial competency, and universities are totally independent from one another. So each university developed its own way of evaluating scientists and none of them has a quantified evaluation mechanism. This is all done through peer evaluations. Of course in those peer reviews you can have someone who's going to say "this person is a good scholar because they have published 25 papers in the last couple of years, that's extraordinary", but it's a qualitative assessment. There's a number there, but we're not having a list of criteria and having a weighted indicator and saying "okay, her final grade is 9 out of 10, so she passes". We're actually quite fortunate to be in a system like that. The other thing which makes things even more complex here is that, given that universities are independent, some are unionized and some are not unionized. Here, at Université de Montréal, we're unionized. Once you have tenure, you know how much you're going to make the year after because everything is in collective bargain agreements. When you go on the other side of the mountain, at McGill University, they don't have a union, so they have an annual evaluation which may include some subliminal bibliometrics the way I mentioned. It probably leads to more competition and more adverse effects associated with research evaluation cultures. My point here is that every country developed its evaluation mechanism in a different way. I think the Canadian one kind of makes sense. Funders at the federal level also don't have any bibliometric component. There's a few programs that at some point were asking scientists to give their H index or stuff like that. I think they stopped because there was a huge backlash. H index, which database, what years? I want to contrast that with several countries that have implemented these evaluation mechanisms.I'm thinking about Belgium, South Africa, even some of the Nordic countries, where some of the funding that's received by universities is based on bibliometric data. The incentives to publish are quite huge. Universities may lose money if they don't publish. This is not something that would happen here. However, where I guess all universities are stuck on the same boat is when it comes to university rankings, because university rankings, even if they don't have a direct effect on us through the government, they do have a direct effect vis à vis the attraction of foreign students. Not all universities rely on foreign students in the same way but all universities rely on them to a certain extent. It's a micro level phenomena where everyone is affected by self-proclaimed rankers of science. So we have a unit here with half a dozen people, what they do is to first supply all of the ranking data to them and then analyze the results and try to find ways to make us as good as possible or, as they would say, "to make us look as good as we are". These rankings have a huge uniformization effect on higher education which is very problematic.

[8] Cátedra Libre Ciencia, Política y Sociedad. (2019). La evaluación en ciencia y tecnología en Argentina: Estado de situación y propuestas. *Ciencia, Tecnología y Política, 2*(3), 025. https://doi.org/10.24215/26183188e025

We were talking about the country level. Now, what about differences among disciplines? These bibliometric, scientometric ways of assessment, do they affect STEM[9] disciplines and Humanities and Social Sciences differently?

I'm glad you're bringing that up because it has the same type of uniformization effect. If you are a social scientist writing books, everything that you're doing won't be counted in those various rankings or in an evaluation. So it creates an incentive for you to actually stop doing the type of research that leads to books, and actually think "okay, I need to work with the short form rather than the long form". It's kind of a two steps for, let's say, our sociologists or historians here, where traditionally they would have written book chapters or books in French. Not only do they need to stop writing books, but they also need to start writing articles. The uniformity or the model that everyone goes in the direction of is the model of STEM disciplines. So we write in English, in international journals, and that becomes a criteria of excellence. Of course, these disciplines quite often also have more prestige. There's no Nobel Prize in Sociology. There's no Nobel Prize in History. So these scientific disciplines are considered as more prestigious. Rankings are tailored for them. Measurement mechanisms are tailored for them. All disciplines are slowly going in this direction. Scientists don't change their behavior so much. How young scientists are being trained will then make them work in that way for the rest of their career. Newer generations of social scientists are behaving differently than the older generations. So we've had cohort data where we were seeing that those who were, let's say, 30 years old in the 1980s were mostly publishing books in French. Those who are 30 years old in 2020 are mostly publishing articles. The topics that you can study are going to be different.

Can this same effect of uniformization be found across languages?

Languages are not neutral and by converging to a single language and to a single publication model we are collectively losing rather than winning. Writing a paper in English is not the same as writing a paper in Spanish or a paper in French. You are not organizing your thoughts in the same way. There's a pure topical point of view, but the way you're going to approach a topic is also going to be affected. Especially in the Social Sciences and Humanities, a paper in English may be accepted in a US journal, but given that it's in a US journal and that they don't care about either Quebec or Latin America, then it will have no public, it won't be read by those people. Instead of writing a paper for our public we are going to write a paper for no public at all. Here, where the university is French-speaking, publishing in French means that these papers are just not counted. They're going to be totally discarded, but the English language papers will be there. It's the same for Latin American universities.

You hold the UNESCO Chair on Open Science. Besides facing privatization in access to scholarly publishing, Open Science seeks to open up data, evaluation, and the complete research process. Could you tell us about these broad openness proposals?

Open science encompasses quite a lot of different aspects, but it has its roots on the fact that science historically is a very exclusive activity.

[9] Acronym for Science, Technology, Engineering and Mathematics.

| Ciencia, Tecnología y Política | Año 8 | N°14 | Mayo 2025 | ISSN 2618-3188 | www.revistas.unlp.edu.ar/CTyP |

People would not have access to papers. Only libraries would have access to scientific journals. Data typically is something that's closed. Scholars don't have access to their colleagues' data. It's something that you control and that you hold on to. Those who do science are those who have PhDs. It's an activity that is relatively elitist. The goal there is to make it be less elitist than it is, opening up science both for scientists and for society. The low-hanging fruit when it comes to open science is open access. We're not there yet and we've just talked about issues related to corporate control of open access. But it's where I think we have a clear path. Besides, there's some uniformity across disciplines. The issue of open data is a bit more difficult. When I was trained in the Social Sciences at the end of the 1990s or the early 2000s, what we were told to do —and it's still the case in many fields— is to destroy our data because the key thing to preserve is anonymity. You have these respondents, these answers, and the anonymity of the people need to be preserved at any cost. So you do your analysis, you keep a sample of the surveys, but you destroy the data to make sure that no one gets that. You have all of the issues with sensitive information also in the health fields. Of course in natural sciences, where you have data on ecosystems or the resistance of bridges to wind and weather and stuff like that, anonymity is not so much a problem because your data is not associated with people. It's associated with things, with nature, with animals. Coming up with a standard way of sharing data is more difficult. The other element is, of course, the inherent competition of the scientific field. Sharing data that one collected for years, once they wrote one paper out of it, would be considered... "hey, I need to publish more based on that, I'm not done with my analysis". We can be angry at someone saying that, but all of the incentives in the system are pushing people to do that. People are not inherently good or bad. They react to what's around them. The other axis that is interesting is open reviews. Peer review is something that's relatively closed. Review reports were not available. More and more journals are giving readers access to the content of the reviews of scientific papers, which I think is great because no paper is perfect, and, for the reader, it's very important, I believe, to see what others have said on a given piece of research. Again, peer review is a relatively good way of filtering out papers, keeping in mind that most papers get published anyway in a journal that has a less stringent peer review. But making sure that the content of those reviews is actually available in parallel with the paper.

What do you think about disclosing the identity of those participating in the review process?

I'm a bit less optimistic when it comes to removing anonymity. Historically, peer reviewers were anonymous. Authors are not as anonymous when it comes to the peer review process. Most journals use a single blind review system rather than a double blind review system. The issue with having reviewers be non anonymous anymore is, first, many people refuse that. You ask people to review a paper telling them that it will have to be done in an non anonymous manner, they're going to say "no, thank you" because they don't want to get into a fight with a colleague and they know that it's going to take them more time because their name is going to be associated with the review. The other thing is the fear of retaliation if you review a paper from someone who's more senior than you or who could retaliate in some way, even as a colleague. This one is not an easy one. I'm mostly again leaning

towards keeping anonymity but making review content open. I do understand that it's imperfect, but if we are to rethink the way papers are evaluated, we need to rethink our publication practices.

What do you mean by "rethink our publication practices"?

Right now, I would argue that we're publishing too much. And I'm guilty of that, I think everyone is guilty of that. But I think we need to move to a system where we probably need less journals. We probably need less publications. The scientific world went from less than a million papers a year in 2000 to about two million papers 15 years ago, to now about 8 million papers a year. The growth in scientific publishing has been huge. For the last three years it's been increasing at a lower pace, but the 2015-2020 period has led to a crazy increase in the overall output of scientists which I would argue is not coherent with the rate of discovery of scientists. We've been publishing mostly incremental studies. Of course there's some revolutionary stuff and there's a lot of good stuff but there's a lot of papers which exist not because readers needed them, but because authors needed them. "I need a paper this year. I need a paper for my thesis. I need a paper because I've got a grant application". We're all guilty of that, but we need to first acknowledge it and try to find a way to solve that issue and it's not easy.

What's the situation regarding the use of artificial intelligence (AI) in scientific practices and the use of open access documents and publications for AI training? Do you think that AI should be regulated where no credit nor authorship is recognized?

That's a complex situation. I'll start by saying that these tools definitely can be useful. We need of course to find a way for them to be used appropriately. The issue of attribution is a crucial one because in a world where authorship wasn't the thing that determines people's career, then everyone would try to use these tools to indeed discover as many things as possible, and then we wouldn't care about who discovers what, we'd just have it. There's a lot of ethical things that I will not be covering but the issue of misattribution of a discovery is a crucial one. Priority. Who should get the Nobel Prize for something that gets discovered through AI? Should it be the one who made the prompt for the AI to discover the thing, or should it be the one who developed the algorithm? You can look up those who won the Nobel Prize in Chemistry last year. It's an algorithm. Those who develop the algorithm are computer scientists, but then it's used by chemists to be able to understand chemical phenomena. The key principle that most scientists agree on is the issue of transparency. We need to be transparent on how we are using it in our own work, how you've used this to be able to develop your research. Not many people are doing it despite the fact that we know that most people are using it to code or to translate or to do summaries, which I believe are ethical ways of doing things. But we need to mention it. These things need to be among the things that we cite, the same way we cite software that we've used. The other orthogonal thing to that is the use of papers to train these AIs. We're in a system now unfortunately where a lot of the papers that are out there have some AI generated content which then is used to train this AI again. So there's a total circular aspect there which we need to be very, very careful with. If we are to train those AIs, it needs to be on content that predates the use of AI. Regulation is complex because science is based on trust and

transparency. We need to be able to trust scientists. In order for people to be transparent there needs to be no stigma associated with the use of it, and in order for it to have no stigma, we need to put forward appropriate uses so that people say “okay, this person uses it that way and it's accepted”. We should probably work on that a bit because otherwise people are going to be using it in the shadows, and I think that won't improve anything because people are already using it. It's not something that's gonna go away quickly. We know that there's a lot of AI generated content in there, some of it published in low quality journals. I sit on a committee at the federal level that oversees scientific fraud at the country level. But most of the committee members were not aware of the use of AI and science and what they could do. So I gave them a little demo. I asked ChatGPT to give me the last ten papers published on a topic, make a summary, make a literature review based on these ten, create three research questions, and then I asked it to make figures. In five minutes I had a full “original” paper. I think not everyone in the scientific community understands how easy it is. We're in a situation where we've got AI generated papers reviewed through AI that actually get published because of the incentives to publish papers. If there's one thing that we can work on, it’s incentives. Try to change the mojo, to try to change what drives scientists, why they go to the office in the morning. I know most of them like what they do and they care about the science, but they probably care too much about publishing, more than they should. Yes, scholarly publishing is important, but actually they should be thinking about their science and working on science and we as experts of scholarly communication should be making sure that we give them the tools while we're taking care of dissemination. It's a different point of view than what I used to have. I thought we needed to train them. No, they don't care, they don't have time. They should be disseminating their science, period. We should be making sure that the system is a fair one. We need their buy-in in some capacity, but we should not aim to make all scientists experts in scholarly communication. That's not the way out of the situation.

International geopolitical and technoscientific struggles are rapidly reconfiguring many of these debates. What changes do you foresee in relation to the topics we have discussed? What strategies could be deployed by actors seeking a greater democratization of public research agendas?

The international order is changing, so what can we do right now? In the crisis in which we are, we're going to need good science. This good science may not end up being published. During the pandemic, the best science was not necessarily published in journals because it was an emergency, we're putting that out as a preprint, this is crucial information that we need now. Out of necessity, we communicate to solve issues. Out of necessity, we may realize that all of these ranking games are actually useless. They are objectively useless. They are not improving things. University rankings do not improve universities. The biggest example is Saudi Arabia where they're just buying authorship in order to increase their ranking. But the universities are not increasingly better. They're not improving research capacity within their country. A crisis like that may actually make us remove the form and focus more on the content. I'm trying to be optimistic here because things are changing as we speak. Universities in the US are being cut funding. The post Second World War world was shaped by US dominance, especially more so since 1989.

| Ciencia, Tecnología y Política | Año 8 | N°14 | Mayo 2025 | ISSN 2618-3188 | www.revistas.unlp.edu.ar/CTyP |

What we're seeing now is that we cannot rely on that country anymore. If we cannot rely on the historically dominant player to help us find solutions, we need to find solutions ourselves. The example that I gave earlier about an internationally controlled, decentralized way, where every country has a copy of all of the scientific archives of everyone is probably the best system. There's an opportunity there for countries to redevelop a national dissemination capacity, in a way, to roll back to the mid 1990s when we outsourced all of our dissemination to for-profit companies. To actually say “we need science for Canadians, Latin America needs science for Latin Americans”. It's not about rolling on ourselves but it's about at least having control on our scientific communication and making sure that we can actually read and contribute to the science that is about us. But it does need international alignment. And as I mentioned earlier, there's organizations that are more than willing to be able to work on that. I guess the point here is to use this opportunity to reorganize ourselves.