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<https://drive.google.com/file/d/1Bnfa6hkjVlpFvO8Ovrm7wvQMYh9ebKix/view>

Good morning,

Before I start I just want to say that the title in the program is maybe a bit misleading - I am not here discussing research impact on behalf of uOttawa, but rather from a personal professional perspective and that the views I am expressing here are my own. That said, I will admit to feeling a bit nervous as I prepared this presentation as I'm advancing something of a critique of the topic at hand and in particular the idea of measuring the impact of research using bibliometrics. I am also willing to admit that as an academic librarian with a continuing appointment I have a massive amount of privilege to sit here today and raise these issues and that not everyone has the liberty to do this.

So what I'd like to do is to advance a few of the challenges and questions I have struggled with this type of discourse as part of my work. Like many of you, this idea of "measuring research impact" has fallen under my portfolio and while I've always wrestled with it from a practical perspective - for example preparing for presentations to faculty or creating web content that tries to explain what exactly it means or how it can be used without falling into the rabbit hole of explaining how it can be misused, full disclosure - I do have a heading on my website currently that says "research impact". But more recently I've begun to think about how some of that practical wrestling with it may in fact be more deep-rooted and may actually come from a more theoretical or ethical perspective. And that's what I'd like to discuss here today.

To lend a bit of structure to the next 15 or 20 minutes I'd like to begin by exploring some of the systematic problems in using citation or bibliometrics for impact, then move on to particular issue with research impact as service, and then wrap up by mentioning some ways others are proposing to "measure impact" in their respective fields.

So first off, I'd like to consider the larger issues in using bibliometrics for impact beyond the "basic" or "technical" limitations that those in this field are generally aware of (different databases can give different results, lack of context -ie. we know that it is cited, not why - is it good or bad, review articles are more highly cited, self-citation and gaming etc.)

This essentially boils down to: What are we counting?

What is included? - what types of scholarship are we examining?

When we look at bibliometrics, it is generally easier to "measure" in disciplines with homogenous ways of communicating research results - We know this already - fields in the

natural sciences in particular have an advantage when it comes to article or journal based research communication methods and that these are collected and indexed in a few identifiable large databases that more easily enable this type of analysis. So what does this mean - it means that the nature of how scholarship is communicated in a discipline has an impact, and in fact there can be a rather narrow definition of what is “counted”.

This has an impact in several ways, firstly - other forms of scholarship like monographs, or digital projects, or artistic or multimedia creation, emerging forms of scholarship - essentially everything that falls outside a traditional form and a certain archetype of research, namely the natural sciences, are not necessarily included. Furthermore, this privileges a particular Western, Eurocentric cultural perspective of what is scholarship, what is knowledge sharing, what is valued, and what Evaluation means.

Again, it is in well established fields with clear or defined boundaries and long publishing traditions that are privileged in these systems and so it is important to highlight the shortcomings of these metrics in terms of sub-disciplinary and interdisciplinary research. We know it's inappropriate to compare these types of metrics across disciplines thereby negating interdisciplinary research, but so too within disciplines. For example, Tyorborn Tyler, a biologist at Lund University, found in his particular discipline that citation frequency differs not only among biological sub-disciplines such as ecology and taxonomy, but within taxonomy papers on highly similar topics and that these differences were based on the organism group and the geographic region concerned, suggesting facetiously, that metrics could be gamed not by publishing the most scientifically sound research, but by targeting particular organisms and geographies¹.

When we investigate what we are counting, we must examine the systems that we are participating in and what issues arise therein. It is well documented for decades that there are issues with gender bias in academia and by extension the publication record. On average, women tend to publish fewer articles than men do. This “productivity puzzle” as it's been coined suggests there is evidence that women tend to publish fewer papers, with each paper being more substantive. On average, papers published by female scholars are cited more frequently than papers written by male scientists who are more “productive”, highlighting problems with so-called meritocracy measures like the h-index, h being highly correlated with quantity of research output². It has also been shown that women have a slightly lower propensity for international research collaboration than their male colleagues, and they tend to publish more single-authored articles than men³. This has been confirmed recently by Lariviere et al who analysed 5,483,841 research papers and review articles with 27,329,915 authorships and found that in the most productive countries, all articles with women in dominant author positions receive fewer citations than those with men in the same positions. And this citation disadvantage is accentuated by the fact that women's publication portfolios are more domestic

¹ <http://www.bioone.org/doi/abs/10.5735/085.055.0123>

² <https://www.tandfonline.com/doi/abs/10.1080/03075079.2015.1007945>

³ <https://www.wissenschaftsrat.de/download/archiv/ChancGleichDoku.pdf#page=31>

than their male colleagues — they profit less from the extra citations that international collaborations accrue.⁴

There are numerous reasons and theories for why this may be so but as Nielsen notes in “Gender inequality and research performance” the increasing dependence on allegedly objective and gender neutral measures of individual scientific performance (i.e. publication counts, productivity trends over time and the h-index) may not merely lead to discrimination and differential treatment as a result of unconscious and implicit bias. It may at the same time implicate that evaluators become less attentive to the structural conditions affecting women’s and men’s publication rates as career breaks and periods with lower productivity output resulting from childcare responsibilities are often left out of the bibliometric assessments, when researchers are appointed for senior research positions.⁵ As Lariviere notes, given that citations now play a central part in the evaluation of researchers, this situation can only worsen gender disparities.⁶

Another challenging question to consider is how are we counting, and by this I mean what systems and system providers are we using and effectively promoting with this type of analysis. In the academic context, the systems we use to measure these things do come from private companies with a not insignificant economic commercial interest in us purchasing and using their products. As libraries continue to try and position themselves in our institutions beyond “buyers of books and journals” and as key players in the research endeavour, we must seriously question where the motivation for demonstrating impact is coming from with regard to citation metrics and bibliometrics. Is the demand coming from our researchers, faculty and users as a way to improve their research and teaching activities, or are we selling it to them as one company notes in their research management product pitch “an evidence-based approach to your institution’s research and collaboration strategies, assessment exercises and day-to-day business decisions.”

This erasure of the academy and the academic mission and replacement with corporate jargon reflects the creeping audit culture that has taken firm hold in certain jurisdictions such as the UK, where perverse incentives in citation metrics, or the higher education equivalent of “teaching to the test”, have led to a not insignificant backlash with an entire corpus of literature on the psychosocial affective consequences of quantitative control and the neoliberal university.

7

So: Given these considerations - exclusion of non-traditional scholarship and interdisciplinary research, difficulty in sub disciplinary application, replication of systemic gender bias, and complicity in the corporatization of the academy - essentially counting, measuring and paying attention to metrics that are flawed in many ways when it comes to using them for any sort of

⁴ <https://www.nature.com/news/bibliometrics-global-gender-disparities-in-science-1.14321>

⁵ <https://doi.org/10.1080/03075079.2015.1007945>

⁶ <https://www.nature.com/news/bibliometrics-global-gender-disparities-in-science-1.14321>

⁷ http://research.gold.ac.uk/6560/2/Living_with_the_h-index_revised.pdf

evaluation of research, what are we as librarians risking by putting ourselves out there with regard to providing these as service? And here, I'd just like to say I'm speaking from the academic and faculty perspective and that these may not be universally shared, but I think this needs some exploring as Libraries embark on bibliometric services in their institutions.

In, "Engaging in Performance Measurement: Introducing Bibliometric Services."⁸ Caroline Leiß at the Technical University in Munich describes her institutions' delivery and evaluation of a formal suite of bibliometric services. Established to support University Management and researchers in their efforts to compete within Germany's "Excellence initiative" their Library started to offer tailored services for research evaluation and performance measurements. The piece covers many of the challenges in establishing such a service, but one of the things that highlighted the possible professional tension came when discussing conflicts of interest. In certain instances University administration requested bibliometric analysis for individuals in order to assess their performance for promotion or tenure without the researcher's permission. As a result, the library worked outside of the usual email channels to maintain confidentiality. While this is a practical solution to the issue (and I cannot presume to know the relationship of the librarians to the researchers) - it does not address the underlying conflict of interest should an institution seek to request the same information for example from members of the same union, or from librarians who seek to work as colleagues with researchers in embedded librarianship models or on research teams.

Implicit in these models of librarianship that we have been seeking to establish and nurture is an element of trust that we are working alongside faculty as colleagues and wish to be regarded as such. If at the same time we start providing "numbers as a service" that can and will have an impact on someone's career, what does that do to this trust? This idea of "reporting" on colleagues could be compromising, and if a service is launched without clear guidelines of what will and will not be provided and to whom there could be a slippery slope to negating this trust.

Furthermore, what does trust mean in the collective? Encouraging the use of these metrics may help those who are already known for their "impact" "demonstrate" exactly what it is, but what does this mean for someone whose work is of high quality but less quantity within the institution? Look at the collective agreements for your institutions' researchers, in all likelihood Metrics are not there. They are not appropriate for everyone - members may have been denied promotion and or tenure based on metrics so are we encouraging them to provide a number that may very well be misused? In an era of austerity where budgets are tight could denying someone promotion can be a cost saving measure? And if there is a grievance based on the use of metrics? Then the researcher goes through a whole process of defending their work and the emotional toll that that entails for the best outcome : reconsideration. Can we say for certain that we know researchers' disciplines well enough to assume at least some of the responsibility of providing proof of worth? Do we want to do this to our colleagues?

⁸ <https://docs.lib.purdue.edu/iatul/2017/analytics/4>

Practically speaking, are these the values we want to embody in our work? Which brings me to highlight a few things that have crossed my path that seek to challenge these types of “counting” metrics.

Hummetrics or Humane Metrics⁹ is a group that are rethinking humane indicators of excellence in the humanities and social sciences. HuMetricsHSS initiative, which calls for a major shift towards a values-based evaluation paradigm in academia and, by extension, academic libraries. HuMetricsHSS proposes that metrics only be used to measure a one’s progress towards embodying five core values that initial research suggests are central to all humanities and social science disciplines: Collegiality, Quality, Equity, Openness, and Community.

The group proposed these core values at a recent workshop and found that there was not core set of values but rather the only thing that everyone could agree upon was the importance of being able to debate your values, and the value of process in helping people with very different worldviews to come to an agreement on the values they did share. Now this aligns more closely with non-traditional approaches to scholarship and could lead to more inclusive practice for otherwise marginalized approaches to learning, knowledge sharing and creation. Additionally, by approaching your work from a values based perspective, the group proposes, that you can ask some very different questions of yourself such as:

Do I show creativity in my approach?
Am I intentional in my approach?
Are my methods reproducible?

The idea of reproducible research is another area in science that is being proposed as a new way of evaluating research - that elements such as methodology, reproducibility, and openness be the measures by which scientific performance is evaluated.

Finally, perhaps we can show our values by just practicing pure Bibliometrics - not using these inappropriately for impact, but for exploring the development of a field, how large scale analysis of the data can lead to some of the insights I mentioned earlier with regard to gender bias, that we as professionals can demonstrate our expertise by showing the power of this field and that citation analysis can lead to new discoveries and “hidden gems” - and on that note I’m looking forward to hearing from Jeffrey next.

Thank you.

⁹ <https://humetricshss.org/>