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The changing societal role of scholarly journals: Interacting with an unlimited audience

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Since the publication of what is generally considered to be the first scholarly journal in 1665, both the scale of global research activity as well as the medium of journals has seen dramatic growth, becoming the de-facto publishing outlet for new research findings within most disciplines. Research published in scholarly journals used to have mostly indirect effects on the broader society and individual citizens, by disseminating new research findings on paper to scholars, or experts within various fields who integrated the new knowledge into honing their professional skills (e.g. doctors, engineers). I argue that that content published in scholarly journals has gradually introduced an additional direct interaction and impact on the wider society that was not present before, in large part due to the emergence of open access in the early 1990s. In their seminal book “*Towards Electronic Journals: Realities for Scientists, Librarians, and Publishers*” published in the year 2000, Carol Tenopir and Donald W. King described the primary role that the scholarly journal system plays in science as: “[...] communicating new, edited, and peer-reviewed scientific information to an unlimited audience beyond an author’s primary or immediate community.” (p.95). The element of the “unlimited audience” originally referred to the theoretical potential that anyone could come over the material as it is made public by being formally published, however, the threshold for laypersons outside of the journals immediate target readership would discover and access the content e.g. through a library that subscribed to the content, was always high. With open access to scholarly journal content being increasingly common through a variety of mechanisms, and mainstream web services making such content discoverable for anyone browsing the web, we are soon about to start seeing what the potential of a truly unlimited audience is for new ways for research to influence society.

Journal publishing is a media sector that has been slow to fully leverage the new possibilities and circumstances introduced by web-based distribution. As the web became widely adopted, journal web access was promptly introduced as a complementary access channel to paper editions, however, at its very core the medium has retained many of the traditions and traits which stem from a print-based past, e.g. subscriptions being the dominant business model

globally, print-optimized length-restricted documents, collecting content into issues, and further into volumes. In part this can be seen as being due to the high value that the scholarly sphere places on tradition, esteem, and prestige which are forces that work against brave experimentation and innovation. However, that does not mean that the web has not evolved around journals with many new ways to discover, use, and communicate around research outputs. The following three paragraphs present three key developments that demonstrate that while the characteristics of the key artefact of the journal article has changed very little over time, there are important mechanisms through which journal articles have come to increasingly interact with the wider society.

Scholarly journal articles have increasingly become established as just another type of content that anyone browsing the web can encounter and benefit from. In addition to scholarly articles being mixed in among other search results on Google, but particularly in the case that a search query matches or resembles the title of a published journal article such results will show up before all other search results and lead the reader to continue to explore them on Google Scholar. Having content prominently highlighted among search results has usually been a benefit limited to expensive advertising campaigns of private sector companies, usually in combination with rigorous search engine optimization. The fact that relevant scholarly content is now featured in this prime virtual real estate by default and for free is a privilege that very likely leads to higher readership of content published in scholarly journals. The current estimate echoed by several studies is that roughly half of all scholarly journal content is available free to access in some form through the web, a proportion which keeps on growing, which means that increasingly links to scholarly journal articles also direct the reader to the full article content instead of a paywall.

Another location where anyone browsing the web usually encounters content derived from and linked to scholarly journal articles is Wikipedia. In comparison to information that can be referenced from other types of sources on the web, scholarly articles are some of the most important in contributing findings that are summarized in informative fact-based pages on all subjects in the encyclopedia. In a study published in 2016 Misha Teplitskiy, Grace Lu, and Eamon Duede conducted an analysis of Wikipedia references to articles in 4,721 high-impact journals covering the Scopus bibliographic database's 26 major subject areas. The authors found that the odds of an open access journal being referenced in the English Wikipedia were 47% higher than for paywalled journals. This despite open access journals still being a minority when it comes to representation within high-impact journals within most disciplines. The authors explained the phenomenon by using the metaphor of the Wikipedia platform as an "amplifier" for literature already available open access. The benefit of giving readers and other editors of

Wikipedia equal possibility to verify sources and continue reading relevant content in-depth by clicking used references is a strong benefit that paper journals nor paywalled digital journals can compete with.

In addition to Google and Wikipedia being facilitators of wider visibility of scholarly journal articles, and particularly content available open access, social media is another layer of interaction that has the potential to tie in scholarly journal content into the broader societal communication. Not only is it possible for anyone to follow the discussion among scholars on public social media platforms such as Twitter, but laypersons also have the possibilities to discover and spread relevant research-based content in their own networks. Since articles are easily linked to it is possible to communicate intimately around new research findings rather than in a vacuum totally separated from the actual source material. Similarly to the findings derived from Wikipedia, open access also seems to facilitate more social media interactions compared to when the content is locked behind a paywall. In a study from 2015 by Xianwen Wang, Chen Liu, Wenli Mao, Zhichao Fang the authors looked at over 1700 articles published in Nature Communications, where they found that open access articles received 2.5-4.4 times the interactions on Twitter and Facebook compared to closed-access articles.

We are now closer than ever before to a reality where the formal publication of research results converges with openness and effortless discoverability on a large scale. This leads to new possibilities for research to influence and impact society in surprising direct and indirect ways that we can only start to imagine at this point in time.

References

- Tenopir, C., & King, D. W. (2000). *Towards Electronic Journals: Realities for Scientists, Librarians, and Publishers*. Washington: Special Libraries Association. 488p.
- Teplitskiy, M., Lu, G., & Duede, E. (2016). Amplifying the impact of open access: Wikipedia and the diffusion of science. *Journal of the Association for Information Science and Technology*. <http://doi.org/10.1002/asi.23687>
- Wang, X., Liu, C., Mao, W., & Fang, Z. (2015). The open access advantage considering citation, article usage and social media attention. *Scientometrics*, 103(2), 555–564. <http://doi.org/10.1007/s11192-015-1547-0>