

Type of Contribution: STUDENT SHOWCASE PROPOSAL

Balancing Act: Exploring Changes to Scientific Communication During the COVID-19 Pandemic

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Introduction

The urgency of the COVID-19 pandemic that began in March 2020 required the rapid sharing of the latest research and data on this topic.¹ The traditional publishing and peer-review system would not allow researchers to share their findings quickly enough to meet the needs of fellow scientists and medical professionals;² the typical “paywall” model of article access could also leave valuable information inaccessible to researchers. The scientific community encouraged researchers to share on pre-print servers their research and data,³ while academic publishers made their COVID-19 publications openly accessible.⁴ This resulted in an “unprecedented number of preprints and journal article submissions” to pre-print servers and academic journals. To accommodate the quantity of output, academic publishers established rapid or fast-track peer-review services,⁵ and pre-prints received a “significant amount of attention from scientists, news organizations, the public, and policy-making bodies”.⁶

Some members of the scientific community argued that scientific communication requires a balance between “speed and uncertainty”, and the measures taken to rapidly share a large

¹ Kayvan Kousha and Mike Thelwall, "Covid-19 refereeing duration and impact in major medical journals," *Quantitative Science Studies* 3, no. 1 (2022): 1, doi: 10.1162/qss_a_00176

² Ivan Kodvanj, Jan Homolak, Davor Virag, and Vladimir Trkulja, "Publishing of COVID-19 preprints in peer-reviewed journals, preprinting trends, public discussion and quality issues," *Scientometrics* 127, no. 3 (2022): 1339, doi: 10.1101/2020.11.23.394577

³ Robert Kiley, "Three lessons COVID-19 has taught us about open access publishing," *LSE Impact of Social Sciences Blog*, 6 October, 2020, <https://blogs.lse.ac.uk/impactofsocialsciences/2020/10/06/39677/>

⁴ David Carr, "Sharing research data and findings relevant to the novel coronavirus (COVID-19) outbreak," *The Wellcome Trust*, 31 January, 2020, <https://wellcome.org/press-release/sharing-research-data-and-findings-relevant-novel-coronavirus-ncov-outbreak>

⁵ 'COVID-19 publishers open letter of intent – rapid review', *Open Access Scholarly Publishing Association*, 27 April, 2020 (updated 17 December, 2020), <https://oaspa.org/covid-19-publishers-open-letter-of-intent-rapid-review/>

⁶ Nicholas Fraser, Liam Brierley, Gautam Dey, Jessica K. Polka, Máté Pálffy, Federico Nanni, and Jonathon Alexis Coates, "The evolving role of preprints in the dissemination of COVID-19 research and their impact on the science communication landscape," *PLoS Biology* 19, no. 4 (2021): 2, doi: 10.1371/journal.pbio.3000959

quantity of information came at the cost of quality assurance.⁷ Peer-review was “upended in order to increase the speed of innovation”,⁸ while the open, public sharing of research at all stages served to magnify issues with quality control. The media at times reported on erroneous information which was then amplified by the public through social media.

Theoretical framework

In DeBruin’s “circles of influence” model, “knowledge creation” starts in a lab with a team of researchers who communicate their discoveries to other experts in the topic. Journalists then communicate these discoveries to the broader public. Each layer of this circle represents a stage of knowledge sharing that involves verification and review. During the COVID-19 crisis, information flew rapidly through these circles as public health bodies, journalists, and the public turned their attention to rapidly-reviewed journal articles and pre-prints.⁹

Research questions

Did rapid peer-review and open access (OA) / pre-print sharing of COVID-19 research actually “accelerate the speed of science” as some have claimed?¹⁰ Is this publishing model appropriate for future crises?

Methodology & Research Results

A literature review of the qualitative studies on material shared and published during the first months of the COVID-19 pandemic suggests that scientists’ research needs were not being met, and that irrelevant materials made up the majority of COVID-19 pre-prints and papers.¹¹

Discussion & Conclusion

While it is demonstrable that pre-print sharing, rapid review, and OA publishing increased the quantity and speed of COVID-19-related communication, it is not demonstrable that these innovations served the needs of researchers and the public good.¹²

In future, researchers and academic publishers can take lessons from the COVID-19 crisis that prioritize accuracy while innovating means of rapid sharing. The public understanding of

⁷ Joseph DeBruin, “Guest post – The Covid infodemic and the future of the communication of science,” *The Scholarly Kitchen*, 8 July, 2020, <https://scholarlykitchen.sspnet.org/2020/07/08/guest-post-the-covid-infodemic-and-the-future-of-the-communication-of-science/>

⁸ DeBruin, “The Covid infodemic and the future of the communication of science”.

⁹ Ibid.

¹⁰ Willa Tavernier, “COVID-19 demonstrates the value of open access: What happens next?,” *College & Research Libraries News* 81, no. 5 (2020): 226, doi: 10.5860/crln.81.5.226

¹¹ Anna Odone, Sandro Galea, David Stuckler, Carlo Signorelli, and University Vita-Salute San Raffaele COVID-19 literature monitoring working group, Andrea Amerio, Lorenzo Bellini, Daria Bucci, Michele Capraro, Giovanni Gaetti, Stefano Salvati, “The first 10 000 COVID-19 papers in perspective: are we publishing what we should be publishing?,” *European Journal of Public Health* 30, no. 5 (2020): 849, doi: 10.1093/eurpub/ckaa170

¹² Anna Odone, Stefano Salvati, Lorenzo Bellini, Daria Bucci, Michele Capraro, Giovanni Gaetti, Andrea Amerio, and Carlo Signorelli, “The runaway science: a bibliometric analysis of the COVID-19 scientific literature,” *Acta Bio Medica: Atenei Parmensis* 91, no. 9-S (2020): 38.

science should also be strengthened so that the media and public are “immunized” against misinformation.¹³

¹³ DeBruin, “The Covid infodemic and the future of the communication of science”.

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