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Study Report

Open Access Effects (OASE) – The influence of structural and author-specific factors on the impact of open access publications from various disciplines

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Contents

Abstract

This study report describes the qualitative part of the project “Open Access Effects – The influence of structural and author-specific factors on the impact of open access publications from various disciplines” (OASE). The aim of the project was to describe the transformation process from traditional to open access publishing with a bibliometric approach and to analyse existing (if applicable future) publishing strategies and conflicts in the context of open access. Related questions were discussed within three focus group interviews conducted online with researchers from 8 different disciplines and 14 different countries around the world. Interviewees were recruited from participants in a previous survey (Fraser, Mayr & Peters, 2021) and from registrations for a workshop held the day before. Mixed sampling approach (convenience and theoretical sampling) to contrast views from researchers of different career status, discipline and resident country. Group size: 7-8 participants. Interview length: approx. two hours each. Among the participants were PhD students (3), postdoctoral researchers (6) and professors (13). Nine participants had a natural science background and 13 had a social science background. They were located in 14 different countries. Following a mixed sampling procedure, two groups were formed in which career status, field of study and country of residence were contrasted, and one group in which senior researchers were predominantly represented in terms of career status.

Dieser Studienreport beschreibt den qualitativen Teil des vom BMBF geförderten Forschungsprojekts "Open Access-Effekte – Strukturelle und autorspezifische Einflussfaktoren auf den Impact von OA-Publikationen diverser Fachdisziplinen“ (OASE). Ziel dieses Projektes war es, den Transformationsprozess vom traditionellen zum Open Access (OA)-Publizieren bibliometrisch zu beschreiben und bestehende (ggf. künftige) Publikationsstrategien und -konflikte im Zusammenhang mit OA zu analysieren. Die Ergebnisse der quantitativen Erhebung wurden im Dezember 2020 in drei qualitativen Fokusgruppen-Interviews diskutiert, um mehr über die Erfahrungen von Wissenschaftler:innen mit der Veröffentlichung von Preprints und Journal-Artikeln im Open Access zu erfahren.
Hierzu wurden drei englischsprachige Fokusgruppen-Interviews online mit Forschenden aus 8 verschiedenen Disziplinen und 14 verschiedenen Ländern weltweit durchgeführt. Die Befragten rekrutierten sich aus Teilnehmer:innen einer früheren Umfrage (Fraser, Mayr & Peters, 2021) und aus Anmeldungen für einen Workshop, der am Tag vor den Fokusgruppen-Interviews stattfand. Kombiniertes willkürliches und theoretisches Sampling zur Kontrastierung von Einstellungen der Befragten im Hinblick auf Karrierestatus, Disziplin und Wohnort. Gruppengröße: 7-8. Interview-Länge: jeweils etwa zwei Stunden. Unter den Teilnehmenden waren 3 Doktorand:innen, 6 Post-Docs und 13 Professor:innen. Neun von ihnen hatten einen naturwissenschaftlichen Hintergrund und 13 einen sozialwissenschaftlichen Hintergrund. Sie kamen aus 14 verschiedenen Ländern. Im Stichprobenverfahren wurden in zwei Gruppen Karrierestatus, Fachgebiet und Wohnsitzland kontrastiert, und in einer Gruppe waren überwiegend Forschende mit einem höheren Karrierestatus vertreten.

1 Technical Data

Staff:	PIs: Dr. Philipp Mayr (GESIS – Leibniz Institute for the Social Sciences), Prof. Dr. Isabella Peters (ZBW – Leibniz Information Centre for Economics & Kiel University) Researchers: Kristin Biesenbender (ZBW – Leibniz Information Centre for Economics), Dr. Nicholas Fraser (ZBW – Leibniz Information Centre for Economics), Fakhri Momeni (GESIS – Leibniz Institute for the Social Sciences)
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Project Period:	March 2018 – February 2023
Status:	Completed
Link:	https://www.zbw.eu/en/research/web-science/open-access-effects
Data:	Qualitative data, online focus group interviews
Software:	The interviews were conducted and recorded with Zoom. The data has been coded with MAXQDA.
Countries:	Bahrain, China, Croatia, France, India, Iran, Italy, Nigeria, Norway, Portugal, Russia, Slovenia, UK, USA

2 Concept of the study

The data sets presented here were collected within the framework of the project “Open Access Effects – The influence of structural and author-specific factors on the impact of open access publications from various disciplines” (OASE). The aim of the project was to describe the transformation process from traditional to open access publishing with a bibliometric approach and to analyse existing (if applicable future) publishing strategies and conflicts in the context of open access. The overarching research question of the project was: What is the genuine open access effect and to what extent does it take place in different constellations?

Preliminary research has shown that open access offers benefits such as better citability, visibility and accessibility of scientific results (Fraser et al., 2020; Gargouri et al., 2010; Piwowar et al., 2018; Solomon et al., 2013). Many actors in science policy and administration, as well as research funders, have implemented recommendations and initial measures to promote open access publishing in the scientific community (Ancion et al., 2022; CoARA, 2022; UNESCO, 2021). This development is part of a larger movement for open science that is still ongoing. As far as researchers are concerned, their publishing behaviour differs in parts from the goals of the open science movement. One has to take into account their everyday working practices in the scientific context when researchers decide how to publish their results. In the system of scientific communication, there are many incentives that steer researchers in other directions, such as the pursuit of excellence, which does not necessarily coincide with open access publishing.

However, there are many different ways for researchers to publish scientific results in an open access format – regardless of whether they intend to publish open access of their own accord or whether they have the option or have been obliged to do so. One option is to publish in open access journals. For journals, there are different types of open access, e.g. gold open access (all articles of a journal are freely available), hybrid open access (only some articles are freely available) or bronze open access (freely available after embargo and without licence) (Taubert et al., 2019). It depends on the publication model whether researchers or their institutions have to pay direct article processing charges (APCs) or whether the publication costs are covered by transformative agreements with the publisher (Butler et al., 2022; Fraser, Hobert, et al., 2021). Pay to publish could be a barrier for researchers to publish in certain journals of their choice (Klebel & Ross-Hellauer, 2023; Momeni et al., 2023; Sivertsen & Zhang, 2022). When journals can be read free of charge and researchers can publish in them free of charge, this is known as diamond open access - in this case, the costs are often borne by the scientific societies or libraries (Ancion et al., 2022). However, the main focus is probably on finding a journal that fits their research and is reputable or even prestigious.

In addition, researchers have the option of posting preprints on a preprint server, which is called green open access, before submitting a paper to a journal (Penfold & Polka, 2020). Some studies have examined the relationship between preprints and journal articles. These have found citation advantages for journal articles that were previously published as preprints (Brierley et al., 2022; Fraser et al., 2020; Larivière et al., 2014). Traditions of posting preprints differ between research disciplines, e.g. there is a disciplinary culture of posting preprints in physics or economics, while it is absent in the humanities (Chiarelli et al., 2019). But there are also changes, such as the push to post preprints during the Covid-19 pandemic, particularly in the life sciences (Fraser, Brierley, et al., 2021). But there are still barriers to overcome, such as researchers' concerns about a lack of quality assurance or the 'Ingelfinger rule' (Chiarelli et al., 2019; Severin et al., 2020).

However, the motivations and concerns regarding open access publishing, and preprints in particular, remain to be evaluated. In this context, we want to analyse structural and author-specific-factors that influence researchers' decisions to publish open access. Structural influences can be, amongst others, mandates from institutions, the emergence of new open access journals, article processing charges (APCs) or funds, and even publishing pressure. In terms of publishing behaviour in relation to open access articles or preprints, author-specific influences may include aspects of career path, affiliation, country and discipline of the authors concerned. They may also manifest themselves in collaborations with other scholars. In addition, the citation behaviour towards open access articles and preprints should be investigated in our study.

Our aim is to more accurately capture researchers' attitudes towards preprint posting and citation, as well as their general experiences with open access publishing. Researchers face many decision-making situations, such as where to publish or what to cite, or furthermore, whether to publish preprints or journal articles first. These decisions are embedded in a broader context of personal or co-author preferences, mandates and institutional requirements or a financial structure. Other dimensions in this context might concern the indexing of publications in Web of Science or Scopus, the visibility of their research or their own reputation (e.g. h-index). In this context, we want to find out more about researchers' preprint publishing behaviour. To this end, we would like to learn about researchers' experiences with preprint publications and open access journal articles, with a particular focus on the decision-making process that precedes publication. Who decides whether to post a preprint or choose an open access option? Are there any peer pressures or mandates that influence scholarly publishing behaviour? What would change the publishing behaviour of researchers? Furthermore, we want to learn about the citation behaviour of preprint and the dissemination of publications on social media platforms. Finally, we want to explore researchers' attitudes towards other forms

of open access, with a focus on support structures for open access publishing and the future of scholarly publishing.

3 Sampling

To gain initial insights, a quantitative survey of authors who have posted preprints on the preprint server bioRxiv was conducted in spring 2020 to investigate the motivations for posting or not posting preprints, with a focus on articles that were eventually published in scientific journals (Fraser et al., 2022). To explore this further, a two-day online workshop was initiated in December 2020 with researchers from different fields and different parts of the world. On the first day, we invited talks that covered studies on the impact of open access and we also presented our own initial findings from the OASE project. On the second day, we organised three focus groups to ask researchers about their preprint publishing behaviour. The focus group interviews form the core of the data sets presented here. In the first part, we were mainly interested in researchers' experiences of publishing preprints and open access journal articles. This was followed by a second part in which we stimulated a discussion about citing and disseminating scientific results on social media platforms. Later, we asked our interview partners about structures or conditions that would be necessary to support publication in an open access format – especially the publication of preprints (see Appendix).

Twenty-two participants were recruited from the previous survey mentioned above (12 participants) (Fraser et al., 2022) and from workshop registrations (10 participants). We used a mixed-method sampling (convenience and theoretical sampling) to compare the views of researchers with different career status, discipline and country of residence. Participants included PhD students (3), postdoctoral researchers (6) and professors (13). Nine participants had a science background and 13 a social science background. They were based in 14 different countries. The participants were divided into three focus groups of 7 to 8 researchers. Following a mixed sampling procedure, we formed two groups contrasting career status, field of expertise and country of residence, and one group in which senior researchers were the predominant subjects (see Table 1).

Table 1: Demographic characteristics of the twenty-two participants

ID	Gender	Country	Academic degree	Discipline	Published open access	Posted preprint	Source
A1	M	Norway	Professor	Marine Science	Yes	No	Workshop
A2	F	Croatia	Postdoc	Marine Science	Yes	No	Survey
A3	M	Slovenia	Postdoc	Economics	Yes	Yes	Survey
A4	M	Scotland	Postdoc	Marine Science	Yes	No	Survey
A5	M	India	Postdoc	Information Science	Yes	Yes	Workshop
A6	M	India	Professor	Physics	No	No	Survey
A7	M	Iran	Professor	Educational Science	Yes	No	Survey
B1	M	Russia	Postdoc	Biology	Yes	No	Survey
B2	M	Italy	Professor	Biology	Yes	No	Survey
B3	M	Bahrain	Professor	Educational Science	Yes	No	Survey
B4	F	France	PhD student	Sociology	Yes	No	Workshop
B5	M	Nigeria	PhD student	Educational Science	Yes	Yes	Survey
B6	M	Portugal	Professor	Geology	Yes	No	Survey
B7	M	India	Professor	Sociology	Yes	No	Survey
B8	M	India	PhD student	Sociology	Yes	No	Survey
C1	M	USA	Professor	Physics	Yes	Yes	Workshop
C2	M	France	Professor	Information Science	Yes	Yes	Workshop
C3	M	China	Professor	Information Science	Yes	Yes	Workshop
C4	M	USA	Professor	Educational Science	Yes	Yes	Workshop
C5	M	France	Professor	Information Science	Yes	Yes	Workshop
C6	M	India	Postdoc	Biology	Yes	Yes	Workshop
C7	M	Iran	Professor	Information Science	Yes	Yes	Workshop

4 Data collection

To achieve our research goal of deepening our understanding of why and when researchers decide to post preprints, we have chosen a qualitative approach. By opting for focus group interviews, we aim to learn about researchers' publishing behaviour through the exchange of reported practices. In doing so, it was achieved that both to the experiences with open access publication and the decision-making process as well as the reactions and assessment of the other researchers were heard.

The focus group interviews were conducted online using the online conference software Zoom. The three groups were moderated by researchers from the project team, namely Philipp Mayr, Isabella Peters and Nicholas Fraser. The interviews were conducted according to the guide mentioned above (see Appendix). The interviews were recorded. In addition, structured notes were taken by two research assistants per group. The participants received an expense allowance of 50€.

5 Data preparation and protection

The interviews were manually transcribed by the project team. The focus group interviews resulted in 387 minutes of material to be analysed. The transcripts were edited and coded using the MAXQDA software for computer-assisted qualitative data and text analysis. A qualitative research method 'Grounded Theory' was used for the analysis (Strauss & Corbin, 1999; Strübing, 2018). Analysing the data through purposive coding and interpreting the data against the background of respondents' demographic information led to a deeper understanding of publishing behaviour in relation to preprints and journal articles. Our aim was to better understand researchers' motivations and what drives their decisions in relation to different types of publication. These criteria of researchers that promote or hinder the transition from traditional to OA publication were elaborated during the coding process.

The members of the research team were the only people who had access to the recordings and transcripts. The coding was done only by them. The transcripts were anonymised.

Acknowledgement

The authors would like to thank our former colleague Nick Fraser who was the main organizer and driving force behind the OASE online conference 'Open access, preprints and research impact'. The focus group interviews which are the basis of this dataset were recorded on the 2nd day of the conference in a follow-up workshop.

6 Published results

Biesenbender, K., Smirnova, N., Mayr, P., & Peters, I. (2023). The Emergence of Preprints: Comparing Publishing Behaviour in the Global South and the Global North. arXiv. https://doi.org/10.48550/arXiv.2308.04186

Biesenbender, K., & Peters, I. (2022a, September 2). *Researchers' Attitudes Towards Publishing and Citing Preprints – Side Paths to Open Access*. https://doi.org/10.5281/zenodo.7043107

Biesenbender, K., & Peters, I. (2022b, September 7). *Researchers' Attitudes Towards Publishing and Citing Preprints – Side Paths to Open Access*. https://doi.org/10.5281/zenodo.6974779

7 References

Ancion, Z., Borrell-Damián, L., Mounier, P., Rooryck, J., & Saenen, B. (2022). *Action Plan for Diamond Open Access*. https://doi.org/10.5281/zenodo.6282403

Brierley, L., Nanni, F., Polka, J. K., Dey, G., Pálfy, M., Fraser, N., & Coates, J. A. (2022). Tracking changes between preprint posting and journal publication during a pandemic. *PLOS Biology*, *20*(2), e3001285. https://doi.org/10.1371/journal.pbio.3001285

Butler, L.-A., Matthias, L., Simard, M.-A., Mongeon, P., & Haustein, S. (2022). *The Oligopoly's Shift to Open Access. How For-Profit Publishers Benefit from Article Processing Charges*. Zenodo. https://doi.org/10.5281/zenodo.7057144

Chiarelli, A., Johnson, R., Pinfield, S., & Richens, E. (2019). *Preprints and Scholarly Communication: An Exploratory Qualitative Study of Adoption, Practices, Drivers and Barriers* (8:971). F1000Research. https://doi.org/10.12688/f1000research.19619.2

CoARA. (2022). *CoARA - Coalition for Advancing Research Assessment*. CoARA. https://coara.eu/

Fraser, N., Brierley, L., Dey, G., Polka, J. K., Pálfy, M., Nanni, F., & Coates, J. A. (2021). The evolving role of preprints in the dissemination of COVID-19 research and their impact on the science communication landscape. *PLOS Biology*, *19*(4), e3000959. https://doi.org/10.1371/journal.pbio.3000959

Fraser, N., Hobert, A., Jahn, N., Mayr, P., & Peters, I. (2021). *No Deal: Investigating the Influence of Restricted Access to Elsevier Journals on German Researchers' Publishing and Citing Behaviours* (arXiv:2105.12078). arXiv. https://doi.org/10.48550/arXiv.2105.12078

Fraser, N., Mayr, P., & Peters, I. (2022). Motivations, concerns and selection biases when posting preprints: A survey of bioRxiv authors. *PLOS ONE*, *17*(11), e0274441. https://doi.org/10.1371/journal.pone.0274441

Fraser, N., Momeni, F., Mayr, P., & Peters, I. (2020). The relationship between bioRxiv preprints, citations and altmetrics. *Quantitative Science Studies*, *1*(2), 618–638. https://doi.org/10.1162/qss_a_00043

Gargouri, Y., Hajjem, C., Larivière, V., Gingras, Y., Carr, L., Brody, T., & Harnad, S. (2010). Self-Selected or Mandated, Open Access Increases Citation Impact for Higher Quality Research. *PLOS ONE*, *5*(10), e13636. https://doi.org/10.1371/journal.pone.001363610

Klebel, T., & Ross-Hellauer, T. (2023). The APC-Barrier and its effect on stratification in open access publishing. *Quantitative Science Studies*, 1–28. https://doi.org/10.1162/qss_a_00245

Larivière, V., Sugimoto, C. R., Macaluso, B., Milojević, S., Cronin, B., & Thelwall, M. (2014). arXiv E-prints and the journal of record: An analysis of roles and relationships. *Journal of the Association for Information Science and Technology*, *65*(6), 1157–1169. https://doi.org/10.1002/asi.23044

Momeni, F., Dietze, S., Mayr, P., Biesenbender, K., & Peters, I. (2023). Which Factors are Associated with Open Access Publishing? A Springer Nature Case Study. *Quantitative Science Studies*, 1–26. https://doi.org/10.1162/qss_a_00253

Penfold, N. C., & Polka, J. K. (2020). Technical and social issues influencing the adoption of preprints in the life sciences. *PLOS Genetics*, *16*(4), e1008565. https://doi.org/10.1371/journal.pgen.1008565

Piwowar, H., Priem, J., Larivière, V., Alperin, J. P., Matthias, L., Norlander, B., Farley, A., West, J., & Haustein, S. (2018). The state of OA: A large-scale analysis of the prevalence and impact of Open Access articles. *PeerJ*, *6*, e4375. https://doi.org/10.7717/peerj.4375

Severin, A., Egger, M., Eve, M. P., & Hürlimann, D. (2020). *Discipline-specific open access publishing practices and barriers to change: An evidence-based review* (7:1925). F1000Research. https://doi.org/10.12688/f1000research.17328.2

Sivertsen, G., & Zhang, L. (2022, August 11). Article Processing Charges (APCs) and the new enclosure of research. *Impact of Social Sciences*. https://blogs.lse.ac.uk/impactofsocialsciences/2022/08/11/article-processing-charges-apcs-and-the-new-enclosure-of-research/

Solomon, D. J., Laakso, M., & Björk, B.-C. (2013). A longitudinal comparison of citation rates and growth among open access journals. *Journal of Informetrics*, *7*(3), 642–650. https://doi.org/10.1016/j.joi.2013.03.008

Strauss, A. L. 1916-1996, & Corbin, J. (1999). *Grounded theory Grundlagen qualitativer Sozialforschung* (Unveränd. Nachdr. der letzten Aufl., 1996). Beltz, Psychologie Verl.-Union.

Strübing, J. (2018). Grounded Theory: Methodische und methodologische Grundlagen. In C. Pentzold, A. Bischof, & N. Heise (Eds.), *Praxis Grounded Theory: Theoriegenerierendes empirisches Forschen in medienbezogenen Lebenswelten. Ein Lehr- und Arbeitsbuch* (pp. 27–52). Springer Fachmedien. https://doi.org/10.1007/978-3-658-15999-3_2

Taubert, N., Hobert, A., Fraser, N., Jahn, N., & Iravani, E. (2019). *Open Access—Towards a non-normative and systematic understanding* (arXiv:1910.11568). arXiv. https://doi.org/10.48550/arXiv.1910.11568

UNESCO. (2021). *UNESCO Recommendation on Open Science*. https://unesdoc.unesco.org/ark:/48223/pf0000379949.locale=en

8 Appendix: Focus groups interviews guideline

A: Preprint publication behaviour

1. What experience do you have with publishing preprints (and open access)?

2. Who determines that a preprint will be posted or that an open access option will be chosen?

3. Is there any peer pressure to publish preprints/ open access?

4. How do you decide where to publish your preprints (e.g. which repository do you select)

   or what open access option you pick?

5. Which kind of articles do you not post as preprints (or other open access publication)?

6. What would change your posting behaviour?

B: Preprint citation behaviour – dissemination on social media platforms

1. What is your experience with citing preprints?

2. Why do you think are publications with preprints/open access articles more often cited?

3. Do you cite preprints?

4. Different social media behaviour for preprints and published articles/ open access articles?

5. What would change your citation/sharing behaviour?

C: Attitudes towards other forms of open access

1. Which structures/conditions are necessary to support preprint/ open access publishing?

2. Scholarly publishing in 5 years: How does it look like?

3. Have you any further experiences with preprint publishing, open access publishing and citation?

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