Transparent Peer Review at Wiley: Two years on what have we learnt?

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Abstract

In September 2018, Wiley began a collaborative pilot initiative with Publons and ScholarOne (part of Clarivate, Web of Science) to open up the peer review process by offering transparent peer review as an opt-out for authors on submission to a journal. If a journal article is published, then the peer reviewers' reports, authors' responses, and editors' decisions accompany the published article. Reviewers also have the option to disclose their names alongside their reports but this is not mandatory. We wanted to learn how the initiative was working and understand the effect of introducing transparent peer review in terms of journal turnaround times and willingness of reviewers to agree to review. We present data from 27 journals across a range of subject disciplines that have participated in the pilot for at least six months. We compared our findings with 29 comparable 'control' journals that did not introduce transparent peer review for the same time period. By considering a total of 74160 submissions we measured changes both pre- and post- the introduction of transparent peer review. We found that on average 86% of authors remained opted-in to a transparent peer review process. The majority of reviewers were willing to publish the content of their reports, however only 15% of reviewers agreed to sign their reports. Transparent peer review did not have an impact on journal turnaround times or the number of revisions authors made. However, editors had to invite more peer reviewers in order to secure a sufficient number of reviewers to agree to review an article, increasing editorial effort. Overall, these results suggest that transparent peer review is feasible across journals in different subject disciplines and is not detrimental to editorial decision times. We think that the benefits of introducing transparent peer review, in terms of trust and accountability for the peer review process and recognition for the work of editors and reviewers, outweigh any practical concerns against it.

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Introduction

While earlier peer review surveys have shown a preference for more traditional models of peer review, i.e., single-blind and double-blind peer review models (SenseaboutScience, 2009), (Taylor&Francis, 2015), (PRC, 2015), more recent surveys across researcher communities have shown growing support for more openness and recognition in peer review, perhaps encouraged by growing support for open research initiatives more generally (Ross-Hellauer, 2017), (SenseaboutScience, 2019), (Moylan, 2019). 'Transparency in review' was the theme of Peer Review Week, 2017 (Meadows, 2017) and Publons' Global State of Peer Review also uncovered important trends regarding peer review practices, including a greater willingness among younger researchers to adopt transparency in peer review (Publons, 2018). A transparent peer review workflow shows readers the process behind editorial decision-making, increases accountability, and helps recognize the work of editors and peer reviewers (Godlee, 2002), (Schmidt et al., 2018).

This September 2020, the theme of Peer Review Week is 'Trust' (Meadows, 2020). Transparent peer review is, of course, a significant step towards bringing greater trust to research publishing and recognition to all involved in preparing and disseminating research. Making the peer review history visible and discoverable is key to improving the quality and efficiency of research communication and improving researchers' trust in a journal's processes while also potentially reducing fraud in peer review. Some journals, particularly those in medical disciplines (for example, the *BMC* series and *BMJ*), have been offering variants of an open peer review model since 1999 (Hodges, 2020), (Smith, 1999). EMBO Press, one of Wiley's publishing partners, introduced transparency into their processes in 2009 and their experience has been overwhelmingly positive (Pulverer, 2010).

In August 2018, two biomedical funders (Wellcome and Howard Hughes Medical Institute) and ASAP-bio (a non-profit organisation encouraging innovation in publishing) advocated publishing peer review reports (Polka, 2018). Their open letter in support of the benefits of peer review transparency has over 370 journal signatories and is still growing as journals are increasingly supportive about the benefits of introducing transparency (ASAPbio, 2018). There are also guidelines for those wishing to implement transparent peer review workflows (Ross-Hellauer & Görögh, 2019) and recommendations for publishing peer review materials (Beck et al., 2018). However, despite the growing interest in transparent peer review, publishers have been hindered in their ability to adopt new approaches by the limitations of existing workflows.

In September 2018, Wiley announced the first cross-industry initiative to pilot an automated, scalable transparent peer review workflow, in collaboration with Publons and ScholarOne (part of Clarivate, Web of Science) (News, 2018). The purpose was to enable journals to 'open up' peer review by introducing more transparency into the process. A vital part of this was the flexibility to enable authors to have the option of transparent peer review when they submit to a journal that can still otherwise offer more traditional models of peer review if authors decline transparency. The way Wiley offers transparent peer review to authors is as an opt-out, i.e., authors are "opted-in" for transparent peer review unless they opt-out. An overview of the workflow is shown in Figure 1.
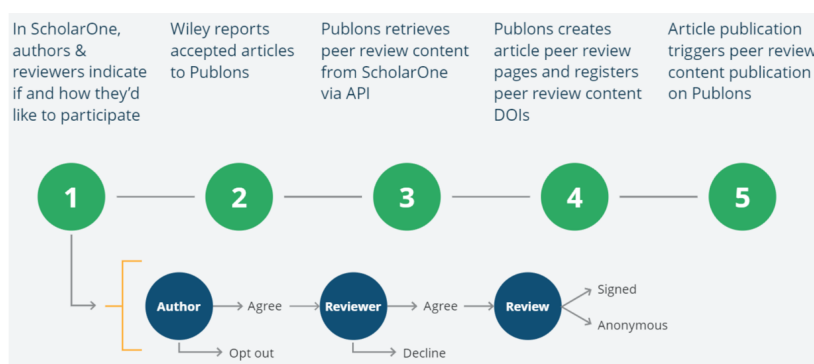

Figure 1: Overview of transparent peer review workflow.

If authors opt for transparency and their article is published, then the peer reviewers' reports, authors' responses, and editors' decisions will accompany the published article. Reviewers also have the option to disclose their names alongside their reports but this is not mandatory. The peer review history is freely available from an "Open Research" section in the article linking to a page hosted by Publons , for example, (Bongomin et al., 2020) and this also allows engagement with the peer review process to be measured. Each component of the peer review history has a DOI, ensuring each element is fully citable.

For those reviewers who choose to sign their reviews, the DOIs can also be added to their ORCID records. The layout of the peer review page reflects the sequence of peer review from original submission, initial peer review, revision, re-review to acceptance of the version of record. Furthermore, each peer review element can be endorsed by, or commented on, by Publons users.

The first journal to join the pilot was *Clinical Genetics (Graf, 2018)*. Since then, the initiative has grown steadily at Wiley, adding a further 10 journals in January 2019 (Moylan, 2019) and reaching a total of 40 journals for Peer Review Week, September 2019 (Graf, 2019). Sixty-four Wiley journals are now offering transparent peer review across a range of disciplines. Here we reflect on what we have learnt during the past two years and share our findings. We present data on the transparent peer review pilot from 27 journals across a range of subject disciplines that have participated for a minimum of six months. In order to minimize bias we assessed similar data on a set of 29 comparable 'control' journals that did not introduce transparent peer review across the same time period. We wanted to understand the effect of introducing transparent peer review to a journal in terms of turnaround times and willingness of reviewers to agree to review.

Methods

Data from 27 journals across a range of subject disciplines (earth and environmental sciences; life sciences; medicine; nursing, dentistry and healthcare; physical sciences and engineering; social and behavioural sciences and veterinary medicine) that have been participating in the transparent peer review pilot were compared to data from 29 'control' journals that did not introduce transparent peer review. Although there is a slight discrepancy in terms of number of journals in each group this was to ensure comparable number of submissions in each group and across subjects. The control journals were sufficiently similar in terms of subject discipline, impact factor, number of submissions and number of publications that no significant differences were detected by using t-tests and Chi^2 tests.

We evaluated data from the journals that joined the pilot pre- and post- the introduction of transparent peer review and compared this to data from the control journals for the same time period (1st September 2018 to 31st March 2020). Journals began joining the initiative from September 2018 onwards, with most joining in September 2019. Including data up until 31st March 2020 ensured that most journals had a minimum of six months data post- the introduction of transparent peer review. Articles in the control group were randomly assigned 'pre- or post- transparent peer review status' based on the month of their publication and the distribution of "pre- or post- transparent peer review" status in the test group during that month. We use the annotation 'control journal - pre-TPR' and 'control journal - post-TPR' when comparing data from the control journals pre- or post- the introduction of transparent peer review with those journals that went on to adopt the model. Data from a total of 74,160 submissions were analysed.

Results

Information on the number of articles included in the study from journals that adopted transparent peer review and the control journals that did not is summarised in Table 1.

Subject	TPR Group Number of Journals	Number of Submissions pre-TPR	post-TPR	Control Number of Journals	Number of Submissions pre-TPR	post-TPR	Total Number of Journals	Number of Submissions
EARTH & ENVIRONMENTAL SCIENCES	1	952	676	1	1130	666	2	3424
LIFE SCIENCES	7	5293	3428	8	6743	3755	15	19219
MEDICINE	6	3526	5332	8	5082	7474	14	21414
NURSING, DENTISTRY & HEALTHCARE	3	1448	3231	4	2162	3437	7	10278
PHYSICAL SCIENCES & ENGINEERING	4	2997	3061	3	2121	2488	7	10667
SOCIAL & BEHAVIOURAL SCIENCES	4	1281	1641	4	1073	1461	8	5456
VETERINARY MEDICINE	2	965	806	1	1218	713	3	3702
Grand Total	27	16462	18175	29	19529	19994	56	74160

Table 1: Overview of number of submissions pre- and post- transparent peer review across journals that adopted transparent peer review and control journals.

A summary overview of the number of submissions to journals that adopted transparent peer review (pre- and post- introduction of transparent peer review) and to control journals for the same time period is shown in Table 2.

Journal groups	First submission	Revision	Total
Transparent Peer Review; pre-TPR	11050	5412	16462
Transparent Peer Review; post-TPR	12455	5720	18175
Control; pre-TPR	12773	6756	19529
Control; post-TPR	13979	6015	19994
Total	50257	23903	74160

Table 2: Summary of submissions to each journal group during the study time period, pre- and post- the introduction of transparent peer review.

Across the 27 journals adopting transparent peer review included in this study, authors that submitted manuscripts to the journals were "opted-in" to transparent peer review unless they opted-out. Table 3 gives an overview of the percentage of author who remained opted-in to transparent peer review across the subject disciplines. The percentage of authors who remained opted-in was slightly higher in the subjects of earth and environmental sciences and veterinary medicine and slightly lower in the social and behavioural sciences.

Subject	First Submissions						Revisions					
	Agree		Decline		N/A		Agree		Decline		N/A	
EARTH & ENVIRONMENTAL SCIENCES	313	0.89	39	0.11		0	285	0.88	39	0.12		0
LIFE SCIENCES	1890	0.86	276	0.13	34	0.02	1065	0.87	139	0.11	24	0.02
MEDICINE	3296	0.86	533	0.14	1	0.0	1326	0.88	176	0.12		0
NURSING, DENTISTRY & HEALTHCARE	2103	0.85	293	0.12	90	0.04	663	0.89	67	0.09	15	0.02
PHYSICAL SCIENCES & ENGINEERING	1729	0.84	320	0.16		0	860	0.85	152	0.15		0
SOCIAL & BEHAVIOURAL SCIENCES	893	0.82	199	0.18		0	438	0.8	108	0.2	3	0.01
VETERINARY MEDICINE	398	0.89	48	0.11		0	327	0.91	33	0.09		0

Table 3: Uptake of transparent peer review across the subject disciplines (number of authors). On average 86% of authors remain opted-in to transparent peer review on submission.

For the study period, a total of 18175 authors were opted-in to transparent peer review on submission and 15586 authors remained opted-in, i.e. 86% of authors. A small proportion of authors (244) changed their mind about their preference of peer review model when submitting a revised version with 57% wanting to adopt transparent peer review. The majority of reviewers preferred to be anonymous with only 15% signing their reviews.

Overall, submissions to journals adopting transparent peer review and control journals did not change during the study period, both journal groups had increased submissions (Figure 2).

Figure 2: Submissions increased in both groups during the study period for journals adopting transparent peer review and the control journals.

However, fewer initial submissions were peer reviewed by reviewers in journals adopting transparent peer review following the introduction of transparent peer review, but this effect was also seen in the control journals (Figure 3).

Figure 3: Overview of editorial decisions on submissions to journals adopting transparent peer review and the control journals.

There were no significant differences between the time taken to reach an initial decision (Figure 4) and final decision (Figure 5) for the journals adopting transparent peer review and the control journals.

Figure 4: Time taken to initial decision for each journal group.

Figure 5: Time taken to final decision for each journal group.

On those journals that adopted transparent peer review the percentage of invited reviewers who completed their review decreased. However, for the control group there was no difference (see Figure 6).

Figure 6: Percentage of peer reviewers completing their reviews for each journal group.

For journals that adopted transparent peer review, on average, six reviewers had to be invited to ensure that a sufficient number of reviews were returned. This increased to seven reviewers post-introduction of transparent peer review. The curves diverge above the median while there is no change in the control group for the same time period (Figure 7).

Figure 7: Number of reviewers invited.

In quantifying the number of revisions that a manuscript had to go through before it was accepted for publication, there was an increase in the number of submissions which were accepted or rejected directly in both groups post the introduction of transparent peer review, but this was slightly larger in the control group (Figure 8).

Figure 8: Number of revisions (including original submission) for manuscripts submitted to journals adopting transparent peer review compared with the control journals.

Figure 9 gives an overview of what happens to submissions to journals adopting transparent peer review and the control group journals pre- and post- the introduction of transparent peer review for cases where reviewers are or are not invited. The rejection rates increased in both the transparent peer review group and the control group for manuscripts where no peer reviewers were invited. However, following the introduction of transparent peer review, if a manuscript is rejected directly by the editor, more manuscripts are referred to another journal post the introduction of transparent peer review than previously. This effect is not seen in the control group.

Where reviewers were invited, the overall rejection rate increased only very slightly, and, depending on test performed, did not even achieve significance.

Figure 9: Summary of outcomes of submissions to journals adopting transparent peer review compared to control group journals.

Figure 10 shows the percentage of authors who agree to remain opt-ed in to transparent peer review when introduced to journals that were originally offering double-blind peer review (i.e. authors and reviewers do not know each others identity) or single-blind peer review (i.e. author identity is known to reviewer but not *vice versa*) (Jones et al., 2020) prior to the introduction of transparent peer review. More authors remained opted-in to transparent peer review on journals that had previously offered double-blind peer review.

Figure 10: The percentage of authors who remain opted-in to transparent peer review on journals that had previously offered double-blind and single-blind peer review..

Discussion

When the transparent peer review initiative began at Wiley, we faced some crucial decisions about how best to encourage the cultural change necessary to facilitate more openness in peer review. We took the decision to make transparent peer review optional for authors, but to implement this as an 'opt-out', i.e., authors were opted-in to transparent peer review unless they opted-out. This approach is in keeping with Wiley's support for open research practices (*Open Research — Wiley*, n.d.) and may explain the high numbers of authors who remain opted-in (Ross-Hellauer & Görögh, 2019). On average, 86% of authors remained opted-in to transparent peer review across the 27 journals offering transparency. This compares with findings from a trial at *Nature Communications* where 60% of authors voluntarily opt-in (Editorial, 2016) and findings from PLOS of 39% uptake when transparency is offered as an opt-in (Kennedy, 2020). However, differences in uptake may also reflect differing support across research communities and subject disciplines (Domingo & Harris, 2020).

When offering transparency as an 'opt-out', there also has to be flexibility if authors changed their minds. Overall, a small proportion of authors (244) changed their mind about their preference of peer review model when submitting a revised version, with 57% wanting to adopt transparent peer review and 43% wanting to opt-out. Journal workflows need to be configurable to accommodate situations where preferences change.

When reviewers are invited to review transparently, they have to agree to sharing their report content if the authors article is published, but it is optional whether they sign their reviews or not. Most reviewers chose to remain anonymous, with only 15% of reviewers willing to sign their reviews. This suggests that peer reviewers are less comfortable with sharing their identity; other studies have also reported a preference among reviewers for anonymity (Bravo et al., 2019), (Domingo & Harris, 2020).

Comparing data from the journals pre- and post- the introduction of transparent peer review with control journals for the same time period enabled us to determine if any of the effects we saw could be attributed solely to transparent peer review or if there were other factors involved. Offering transparent peer review did not seem to have an adverse effect on submissions. In the time period of this study, submissions increased across both the journals offering transparent peer review and the control journals. Similarly, there was no adverse effect on times taken to reach an initial decision, final decision or number of revisions an author had to submit under the transparent peer review model. Overall, both the journals operating transparent peer

review and the control journals were faster post the time period when transparent peer review was offered and may reflect other general improvements in editorial processes.

Interestingly, in cases where a journal offers transparent peer review, we did observe an increase in the number of decisions that are made directly by editors without external peer review. We also noted that editors made more referrals to other journals than they did prior to operating under transparent peer review. Interestingly this effect was larger in the transparent peer review group than the control group, even though more journals in the control group were participating in journal referral networks than the transparent peer review group.

Reviewers are slightly less likely to complete their report for the journals that began operating transparent peer review (Figure 6) but this effect was not seen in the control journals. In order to ensure a manuscript receives a sufficient number of agreed reviewers, editors often have to invite more peer reviewers when the journal operates transparent peer review (Figure 7). However, other studies of transparent peer review have not found this to be the case (Cosgrove & Cheifet, 2018), (Bravo et al., 2019) suggesting that this may vary across subject disciplines. Certainly studies of fully open peer review where reviewers make visible both their report content and their identity indicate that more reviewers have to be invited (van Rooyen et al., 1999), (Kowalczuk & Samarasinghe, 2017), (Burley, 2017). However, the continued success of journals offering more open models of peer review suggests that editors are able to overcome any perceived challenges in securing sufficient reviewers for the added benefits that increased transparency brings (Amsen, 2014).

As the transparent peer review initiative has grown at Wiley, we have been encouraged by feedback from editors (Graf, 2018), (Moylan, 2019) and authors who have valued the fair and high-quality peer review comments they have received. Our approach to offering transparent peer review is fully compatible with journals that operate double-blind peer review and single-blind peer review. So a journal could be configured to offer double-blind peer review to address any perceived bias during the peer review process, but still operate transparently post-peer review in sharing review content. The flexible way in which we offer transparent peer review also allows authors and peer reviewers to choose a level of openness they are comfortable with when undertaking their review.

Given the success of the pilot initiative to introduce more transparency to peer review and the lack of any overwhelming detrimental effects, we will continue to offer transparent peer review to more journals in future.

Limitations

The study is limited by the number of journals that were taking part at the time the study was undertaken (27 journals). Journals joined the initiative at different times, so for some journals we only had six months of data, others more. Journals included in the pilot were also 'self selecting' in their willingness to embrace transparent peer review. Any differences between authors and reviewers in terms of subject areas, countries and gender, for example, have not been explored. In addition, different journals have different policies with how reviewers are invited, either sequentially or in larger numbers at a time, and this may have a bearing on comparisons between journal groups.

Conclusion

Two years on from starting to offer more transparency in peer review via a collaborative pilot initiative we are delighted that author uptake remains high. Overall, we are not seeing any adverse effects on editorial turnaround times for journals that have introduced transparency. However, we acknowledge the additional editorial effort involved for editors who have to invite more reviewers in order to secure a sufficient number to peer review an article. This additional effort, although significant, is not insurmountable and brings the

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added benefits of trust and transparency to the peer review process, accountability and recognition for the work done.

Data availability statement

In order to protect the identity of journals taking part in the transparent peer review initiative we have only included summary data in this preprint. Tests and data that support the analyses are shared in the Appendix.

Disclosure of conflicts of interest

All authors are employed by Wiley and benefit from the company's success.

Author contributions

Elizabeth Moylan: conceptualization, writing - original draft, writing - review & editing. Kornelia Junge: data curation, formal analysis, investigation, methodology, visualization, writing - review & editing. Candace Oman: visualization, writing - review & editing. Elisha Morris: conceptualization; investigation; writing - review & editing. Chris Graf: conceptualization; supervision; writing - original draft; writing - review & editing.

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Appendix

The tests and data that support the analysis and some additional data are available here:

Hosted file

`TPR tests and data.xlsx` available at https://authorea.com/users/260319/articles/469484-transparent-peer-review-at-wiley-two-years-on-what-have-we-learnt

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