

# PeerJ – A case study in improving research collaboration at the journal level

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**Abstract.** PeerJ Inc. is the Open Access publisher of *PeerJ* (a peer-reviewed, Open Access journal) and *PeerJ PrePrints* (an un-peer-reviewed or collaboratively reviewed preprint server), both serving the biological, medical and health sciences.

The Editorial Criteria of *PeerJ* (the journal) are similar to those of PLOS ONE in that all submissions are judged only on their scientific and methodological soundness (not on subjective determinations of impact, or degree of advance). *PeerJ*'s peer-review process is managed by an Editorial Board of 800 and an Advisory Board of 20 (including 5 Nobel Laureates). Editor listings by subject area are at: <https://peerj.com/academic-boards/subjects/> and the Advisory Board is at: <https://peerj.com/academic-boards/advisors/>.

In the context of Understanding Research Collaboration, there are several unique aspects of the PeerJ set-up which will be of interest to readers of this special issue.

Keywords: Open access, peer reviewed

## 1. Introduction

PeerJ is based in San Francisco and London, and was launched in 2012 by Co-Founders Jason Hoyt (previously of Mendeley) and Peter Binfield (previously of PLOS ONE). PeerJ Inc. has been financed by Venture Capital investment from O'Reilly Media and OATV and Tim O'Reilly is on the Governing Board.

PeerJ is a full member of CrossRef, OASPA (the Open Access Scholarly Publishers Association) and COPE (the Committee on Publication Ethics). Content is formally archived by CLOCKSS, LOCKSS and PubMed Central. PeerJ is indexed in PubMed, PubMed Central, Scopus, Google Scholar, the ACS databases and the DOAJ. PeerJ is a signatory to such things as the Budapest Declaration, SF DORA (The San Francisco Declaration on Research Assessment) and ICORE (The International Council for Open Research and Education).

PeerJ enforces the highest standards in terms of Ethical Disclosures, Conflict of Interests reporting, Funding Disclosures, enforcing Data Availability etc. These are outlined in the PeerJ author instructions at <https://peerj.com/about/policies-and-procedures/>.

*PeerJ* (the journal) has been publishing articles since February 2013, and *PeerJ PrePrints* has been posting preprints since April 2013. At the time of writing (July 2013) well over 100 articles have been published in *PeerJ* and over 50 preprints have been posted to *PeerJ PrePrints*.

## 2. The PeerJ business model

The vast majority of Open Access journals are either free, or charge an APC fee per published article. PeerJ, by contrast, has created a new and innovative business model based around individual memberships. Authors pay a single low price for a lifetime Membership to PeerJ, giving them the rights to freely publish a certain number of articles with us per year. Each co-author on a paper must be a paying Member with the correct membership level, however if an article has more than 12 authors then only the first 12 need become paying Members.

The Membership levels are described at <https://peerj.com/pricing/>. To summarize:

- Free Members can publish one *PrePrint* per year for free;
- Basic Members can publish unlimited *PrePrints* and 1 *PeerJ* article per year, for free;
- Enhanced Members can publish unlimited *PrePrints* and 2 *PeerJ* articles per year, for free;
- Investigator Members can publish unlimited *PrePrints* and unlimited *PeerJ* articles per year, for free.

Although the cheapest membership rates apply ‘at submission’, authors can choose to take out PeerJ Memberships before or after their article is accepted. For example, they might choose to submit for free and pay only when their article is accepted (in which case there is a small price differential: \$139 vs \$99 for the Basic Membership, for example).

To incentivize participation in the environment, and make this a collaborative scientific effort, all Members are asked to perform one ‘interaction’ in the system each year. This can be as simple as a comment on an article in *PeerJ* or *PeerJ PrePrints*, or as involved as a formal pre-publication review for *PeerJ*. By requiring this level of interaction we hope to maintain an engaged Membership base and to share out some of the ‘review burden’ which often causes academics to feel overwhelmed with review requests.

By predicating our business model on individual memberships rather than a ‘payment per publication’ much of our functionality and thinking has, by a natural consequence, become very ‘individual centric’. In this article, we will explore how this contributes to improved research collaboration.

## 3. Who is the customer and how does that affect our thinking?

The large majority of journals are subscription titles and these journals tend to view the academic librarian (or, more broadly, the academic institution) as their customer. As a result, publishers of subscription titles develop resources and functionalities which address this customer base (for example, they attend librarian conferences; they generate institutional level COUNTER compliant usage reports; they have an institutional sales force which visits librarians etc.). Although they recognize that authors are an important player in their ecosystem (being the producer, reviewer and consumer of their content), they do not naturally regard authors as being ‘customers’ of their service.

Open Access journals (particularly those that charge authors a fee for publication) typically view the author as their customer. As a result, they rarely attend library conferences, they have no need for an institutional sales force; they have little need to generate institutional COUNTER reports etc. Instead, they develop tools and services which address their customer base – for example they compete on speed of review; or price per publication; or they develop article level metrics. Despite this focus on the ‘author as customer’, the typical OA business model is to charge an APC (‘article processing charge’) per publication. Because these payments are made ‘per publication’, those publishers do not really concern

themselves with who the individual authors are (other than to bill one of the co-authors with the final publication fee).

Both situations are exacerbated by the fact that many publishers do not control their own user data very well. For example, many publishers have outsourced their peer review system to third party providers (e.g. Aries or ScholarOne); they have outsourced their publication platform to other third party providers (e.g. HighWire); and they may have outsourced their commenting system (e.g. to Disqus). Because of this fragmentation, and because of a lack of disambiguation of individual names, it is hard for them to have a good idea who their users are, or how those users have interacted throughout their system.

The PeerJ situation, on the other hand, is much more focused on the contributions and interactions of individuals. PeerJ has a business model which requires every person who interacts with us (including all co-authors on papers and preprints) to be Members; and we have built our software from the ground up to provide a single consistent environment (with a single sign on for all users and the same user interface throughout). This gives us a much greater knowledge of, and control over, our own user data (as compared to the situations outlined above). Hence, we have a good knowledge of every interaction of every user in our system, be they an author, reviewer, editor or commenter and we have a vested interest in providing those users with as good an experience as possible (in order to encourage them to be members in the first place). As a result, we have developed a mindset (and associated functionality) which is focused on individuals rather than articles.

This mindset can already be seen in some of the following examples.

#### **4. Highlighting the individual**

- We create attractive user profile pages which are maintained by users (who can include their photo; their biography; links to their web sites etc.) and also automatically list all the contributions which an individual might make (for example, the articles they have authored, or reviewed, or edited etc.).
- PeerJ search functionality (<https://peerj.com/search/>) combines results from *PeerJ* articles, *PeerJ PrePrint* articles, member profiles and Editor biographies. Results are presented using a faceted search interface and all searches form permanent URLs.
- When visiting an article page, we list “similar editors” on the right hand side of the screen. As we build up more authors, this functionality will expand to show “similar authors”.

#### **5. Providing public credit to all participants for all forms of participation**

It is a frequent complaint that being a peer-reviewer, or making an insightful comment on an article, does not accrue any ‘credit’ in the academic world. To address this, PeerJ explicitly recognizes the contribution that all individuals make to the overall effort, via a system of “Academic Contribution” (<https://peerj.com/about/FAQ/academic-contribution/>).

Specifically, we show whether or not an individual has interacted as an author, editor, reviewer, or commenter; whether they chose the more ‘open’ path for their contribution; whether their comments were well received and so on. Each activity has a certain ‘score’ and the overall effect is to explicitly show and recognize all contributions that an individual has performed in the system (provided that individual has given us permission to do so). An example of a profile showing this can be seen at <https://peerj.com/MathewWedel/>.

Although early days, the expectation is that as the participation of individuals builds up, then the system will be able to show who are the most prolific, or insightful, or helpful contributors to their academic field.

## 6. PrePrints – Serving the customer throughout the publication process

PeerJ serves authors throughout the entire process of drafting, writing, revising and submitting their journal article. In particular, *PeerJ PrePrints* provides great flexibility for authors in this process.

We regard *PeerJ PrePrints* as a location where authors can upload early drafts of academic articles (the formatting and style requirements are minimal). Once uploaded, they can get feedback from other users (via our commenting functionality) and they can revise their submission with multiple versions. Once they feel the article is ready for publication they can then transfer the record to *PeerJ* with a single click, for formal peer review at that journal. Assuming the article is published in *PeerJ* then it will accrue Article Level Metrics, and can also be commented upon. Should the author feel the need, they could then further revise that paper and submit it back into *PeerJ PrePrints* to start the whole process once more.

Already, authors have revised some of their preprints several times; some preprints have gone on to be published in other journals; and some preprints have been transferred into PeerJ for formal peer review.

## 7. One possible solution to the problem of guest authorship

One aspect of research collaboration which perhaps does not work very well in the real world, is the correct attribution of all authorship contributions, and the problem of ‘guest authorship’ (where an author is placed on an article despite having had no involvement in the work).

PeerJ asks all co-authors to explicitly inform us as to their authorship contribution(s), and this information is presented on the published article (and as machine readable metadata). In addition, each co-author on a PeerJ article must be a paying member, with a unique email address, and must confirm that they were indeed an author. With these two factors in mind, the problem of Guest Authorship, if not eliminated, is at least hopefully reduced.

## 8. Open Peer review

It is not a consequence of our Business Model, however PeerJ practices ‘optional open peer-review’, which we believe will ultimately enhance research collaboration. At PeerJ, ‘optional open peer-review’ means that it is optional (but encouraged) for reviewers to provide their name; and authors are given the option of reproducing their peer-review history on their published article.

We weren’t the first to develop open peer-review (it is operated successfully in places such as BMC, BMJ, EMBO etc.), however we were the first to make both aspects optional in this way (and to incentivize ‘good’ behavior via other aspects of our functionality). To date, our open peer-review process has been extremely well received, and a roundup of reactions is at: <http://blog.peerj.com/post/43139131280/the-reception-to-peerjs-open-peer-review>. At present, >40% of reviewers are providing their name, and >70% (and growing) of authors are choosing to reproduce their peer-review history. Where peer review history is made available, as much as 15% of the usage of an article is directed to that page.

By opening up the peer review process to transparent scrutiny, we believe that the overall system of peer review and feedback will be improved. Already, we see examples of people stating that they are

now able to use the back and forth that goes on as part of peer review when teaching their students how science operates in the real world.

## **9. Summary**

Taken as a whole, we believe that PeerJ has launched with many innovative features which will ultimately serve to improve research collaboration. Right now, we do not have a large enough database of interactions or published articles, to be able to see the full benefit of much of this new thinking, but we believe that over the coming months and years it will become clear that some of these innovations have indeed contributed to a new environment which has facilitated and improved research collaboration at all levels.